Youth Entrepreneurship in Agribusiness in Indonesia

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List of Acronyms

ASEAN	Association of Southeast Asian Nations
BPPSDMP	Agricultural Human Resources Extension and Development Agency
IPB	Bogor Agricultural University
FAO	Food and Agriculture Organization
ICT	Information and communications technology
IFPRI	International Food Policy Research Institute
IFAD	International Fund for Agricultural Development
ILO	International Labor Organization
IsDB	Islamic Development Bank
NEET	Not in employment, education, or training
NGO	Nongovernmental organization
PWMP	Program for growing young agricultural entrepreneurs
SFSA	Syngenta Foundation for Sustainable Agriculture
SMEs	Small and medium-sized enterprises
UMKM	Micro, small, and medium enterprises
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
UNDP	United Nations Development Programme
YASI	Yayasan Agri Sustineri Indonesia
YE	Youth entrepreneur
YESS	Youth Entrepreneurship and Employment Support Services

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Executive Summary

Creating opportunities for youth is a necessary and important strategy to optimally harness the existing demographic dividend. Since agriculture sector continues to be an important resource in many developing countries including Indonesia, it is an important pathway to create employment opportunities for youth. The presence of a strong entrepreneurship ecosystem in the agribusiness sector can incentivize youth to consider participating in the sector.

Indonesia has undertaken several steps in this direction which have propelled growing entrepreneurship opportunities, yet many challenges exist. Difficulty in accessing markets, financial constraints, poor access to credit, lack of adequate infrastructure, weather, pest and disease problems, and lack of available skills training are all contributing factors. There is a need for skilled human capital at different levels such as to provide i) advisory support on innovations and technical know-how and ii) well trained employees to help in running the business. Entrepreneurs must also emphasize on their role as mentors to train, encourage, and support other youth.

This report is part of an international multi-country comparative study on youth entrepreneurship in the agribusiness sector. It uses a conceptual framework on key drivers of the success of youth entrepreneurship. Through a combination of a literature review of the status of the policy, institutional, technological, business, and individual environments that support youth entrepreneurship and case studies of agribusiness entrepreneurs, the report analyzes the existing agribusiness entrepreneurship ecosystem in Indonesia. Key lessons and recommendations are drawn with the aim to strengthen youth entrepreneurship in the agriculture sector.

Indonesian government has policies and programs to support youth education, employment, and entrepreneurship. But the efficacy of implementing is weak due to limited human and institutional capacity and budget constraints. Besides, there is lack of coordination between government and non-government stakeholders.

The case studies highlight the support as well as the challenges faced by entrepreneurs in setting up and expanding their business. The support received from family, friends, acquaintances, and local community has been particularly important. Sustainability and scalability remains a concern for entrepreneurs because of the risks involved. The key amongst them are seasonality, price fluctuations, perishable nature of products, pest and disease, growing competition, and market and credit accessibility.

The challenges identified at the policy, institutional, technology, business, and individual levels need to be addressed urgently. Strengthening capacity at different levels requires bringing in expertise from across stakeholders and creating an ecosystem which enables multi-stakeholder engagement. Given the multitude of and diversity within geographies in Indonesian, it is necessary that the solutions are location specific. In the aftermath of the global pandemic, the

case for digital technology as an important pathway for development and growth of agribusiness has become even stronger in countries across the globe, including Indonesia.

1. Introduction

The latest projections indicate that the global population could grow to around 8.5 billion in 2030, 9.7 billion in 2050 and 10.4 billion in 2100. A major share of the projected increase in global population through 2050 can be attributed to the momentum of past growth, as reflected in the youthful age structure of the current population (UN, 2022).

The global youth unemployment rate is estimated at 15.6 per cent in 2021 with approximately 75 million young people unemployed globally. While, the global share of young people neither in employment nor in education or training (NEET) decreased between 2005 and 2019, the Covid-19 pandemic had an adverse impact on the progress made. In 2020, on average, almost one in four (23.3 per cent) of all young people had NEET status (ILO, 2022).

Food systems are one of the largest employer of young people, particularly in the Global South. But, often, they do not provide decent work or adequate livelihood opportunities. Entrepreneurship in agriculture, is one way in which youth have been participating in the agriculture sector (FAO, 2021).

In Indonesia, there has been a rising number of people pursuing entrepreneurship in the recent years. While the rise in confidence and capacity has propelled this shift, there are significant challenges that need to be addressed to ensure the sustainability of entrepreneurship. For example, interest in entrepreneurship is often not accompanied by adequate capacity to run the business sustainably. Often times, entrepreneurship models, including in the agribusiness sector, are not based on understanding of business models, markets, and innovation (Republic of Indonesia, 2020).

Given this backdrop, this report focuses on youth entrepreneurship in agribusiness in Indonesia. The following section provides the methodology and the conceptual framework used. Section 3 presents an overview of the nature and status of youth employment in Indonesia, and specifically in the agriculture sector. The report highlights the status of policy, institutional, regulatory, technical, and business environments in which youth entrepreneurs (YEs) operate in Indonesia. Section 4 presents case studies of entrepreneurs working in the agriculture sector. Section 5 gives key findings and lessons learned from the case studies. Section 6 provides recommendations based on the key lessons, while section 7 gives concluding remarks.

2. Methodology

The key research question addressed in this study is “What are the drivers of empowering rural youth through entrepreneurship in Indonesia?”. This section describes the methodology, including case study selection, conceptual framework, and data collection process.

Case Study Selection

To address the question, we begin with a country-level business ecosystem analysis to identify potential youth models in agribusinesses and rural enterprises. Based on the analysis and other selection criteria such as age, geography, type of business, approachability, and primary forms of support received, we selected entrepreneurs for the case studies. In the case of Indonesia one

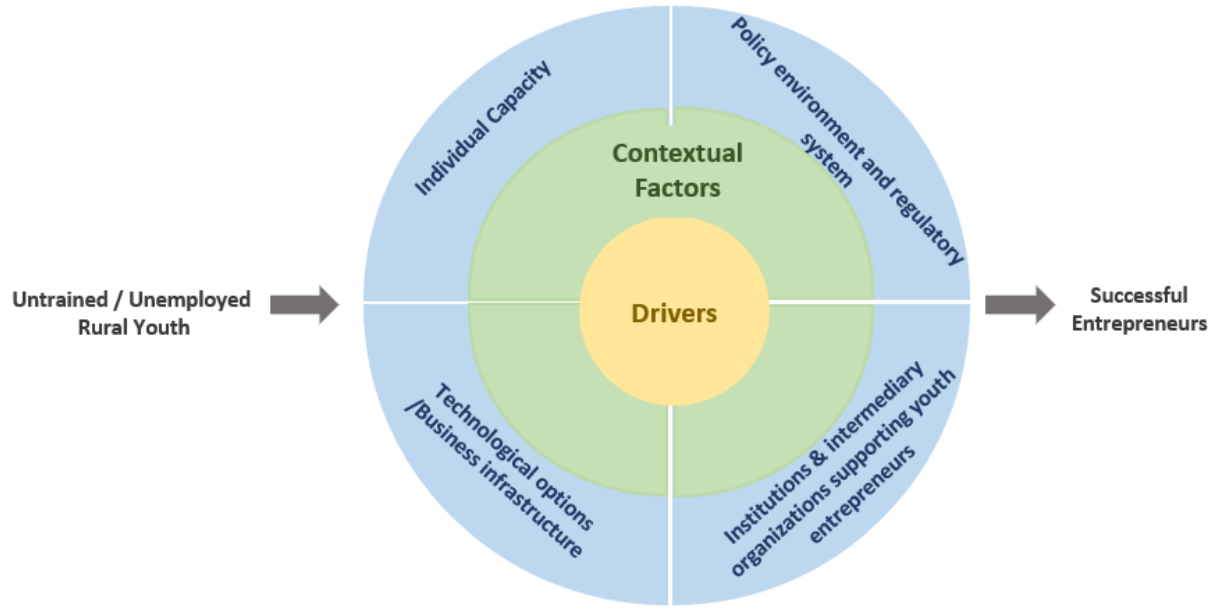
key support considered was whether the entrepreneurs were members of 'Pancer Tani', a multi-service platform provided by the Syngenta Foundation for Sustainable Agriculture (SFSA) to support existing and aspiring entrepreneurs working in the agriculture sector in Indonesia. The details of the Pancer Tani model are discussed in Section 3 of the report. A total of twenty one entrepreneurs from two areas, namely, Malang and Bogor were interviewed. Both Pancer Tani and non-Pancer Tani entrepreneurs were interviewed to draw a comparative analysis.

The Indonesian country study involves three case studies who are older than 50 years. We intentionally include them in the country report as this gives an opportunity to compare the success factors between the younger and older generation of entrepreneurs. This also helps to give differential recommendations to the policy makers and program designers when they approach the agribusiness development strategy in their countries.

Conceptual Framework

A set of contextual factors and key determinants of rural entrepreneurship and empowerment have been identified. Figure 1 illustrates the framework applied in the case studies. The model evaluates each case study across four key components: policy environment and regulatory system, institutions and intermediary organizations supporting YEs , technological options and business infrastructure, and individual capacity and skills. Each of these components comprises a set of factors and drivers that encourage rural youth empowerment through entrepreneurship.

Figure 1: Framework for rural youth empowerment through entrepreneurship



Source: Authors' compilation

The advantages of using this framework are fourfold. First, it helps to identify issues at the policy system level in various political economy settings. Second, it can identify and compare individual

capacity and skill constraints that youth face in different policy and business environments. Third, it can trace the interventions needed at the institutional and regulatory level where gaps may work for and against youth engagement in agribusinesses. Finally, it is readily amenable to operationalization and application to a broader set of country case studies.

Table 1: Selected key factors and drivers for rural youth empowerment through entrepreneurship

Strategic Areas	Contextual Factors	Drivers
Policy environment and regulatory system	Political environment development for youth/youth migration	National youth policies / Social investment/youth investment / youth development fund
	Public-Private Partnership opportunities	Harmonized policy system, including an established entrepreneurship ecosystem
	Infrastructure for business / access to assets (such as land, markets, etc.)	Agribusiness strategies / policies (across agribusiness value chains)
	Governance and judicial system	Export / market / trade opportunities
	Sound financial system	Access to credit and insurance
	Regulatory environment	Regulatory support
Institutions and intermediary organizations supporting youth entrepreneurs	Enabling business environment / financial services	Multi-stakeholder approaches to youth and market opportunities
		Access to finance and credit
		Access to knowledge and skill development
	Existence of Chambers of Commerce	Support from Chambers of Commerce for youth development
	Existence of technical institutions / skill development institutions / building youth capacity	Farmer organizations, etc. encouraging youth development
	Existence of youth associations – networks, and mentorships institutions	Agribusinesses courses available at technical institutions or post-secondary level
	Development of institutional partnerships in value chains	

Technological options / Business infrastructure	Telecommunication infrastructure / ICT and its adoption	Connectivity/access to internet/Cost of mobile / data
	Availability of technology and innovation	Access to new technology and its adoption by youth
	Value chain development opportunities, agribusiness incubators, and academic and research linkage	Youth are guided by an entrepreneur ecosystem with multi-stakeholder participation
	Information and knowledge system supporting youth	Access to relevant and reliable information
	Rural roads, storage/logistics infrastructure	Access to input and output markets/processing and storage facilities
Individual capacity / Skills	Working/family business experience	Incentives and motivations
	Professional incubator facilities for the youth	Education/aptitude for learning
	Access to knowledge and research	Ability / soft skills exposure
	Mentorship in business, networking, and community support	Business attitude and professional outlook, and skills

Source: Authors' compilation

Based on the conceptual framework, each case study has four sections analyzing the driving factors of youth entrepreneurship.

Policy and regulatory environment: This component refers to the policy environment, particularly to the constraints and support it poses for the development of youth entrepreneurship. It highlights potential policy and regulatory changes needed to further promote youth entrepreneurship in agribusiness. Drivers of successful youth entrepreneurship include effective national youth policies, social investment, youth development funds, agribusiness strategies related to youth, access to credit and insurance, as well as market and trade opportunities. We hypothesize that an enabling policy environment that nurtures an entrepreneurship ecosystem and facilities empowerment of YEs through multistakeholder participation is essential.

Institutions and intermediary organizations supporting youth: This component focuses on the roles played by relevant institutions and intermediaries in developing youth entrepreneurship. Key drivers include access to knowledge and skills development, support from Chambers of Commerce to pursue entrepreneurship ventures, and the availability of and access to agribusiness courses at technical or postsecondary institutions. We hypothesize that institutional support through multistakeholder approaches for connecting youth to agribusiness opportunities and providing credit, business education, skills development, and partnerships can drive engagement of rural youth as entrepreneurs.

Technological options and business infrastructure: These factors and drivers relate to technological solutions, including access to mobile technology and other infrastructure needed to successfully run agribusinesses. Information and knowledge about markets and prices can be made available to entrepreneurs through ICT. Payment through mobile phones and other infrastructure for online transactions are increasingly important for small businesses in developing countries. The development of cold storage facilities for commodities, as well as logistical support for marketing produce locally and internationally, are also needed. Finally, support for research and development helps adapt technologies to local conditions and ensures continuous improvement so that YEs remain competitive. We hypothesize that the availability of and access to appropriate technologies and infrastructure facilities help engage large numbers of agricultural youth.

Individual factors: Involvement of YEs in agribusiness depends on their individual circumstances. Studying these characteristics helps clarify the areas in which youth may need help to develop specific technical skills and gain human, financial, political, social, and material capital for effectively initiating and expanding businesses. Key drivers include incentives and motivation to pursue entrepreneurial opportunities, education and aptitude, ability, soft skills, and business attitude. We hypothesize that factors that contribute to youth's development of individual capacity and skills will help generate numerous agricultural YEs.

Data Collection and Interview Process

An outline of structured interview was designed based on the conceptual framework. Select entrepreneurs were interviewed in personal meetings in the business setting. Field visits were made to business locations and operations of the entrepreneurs. Policymakers, program managers responsible for youth programs in Indonesia, and other key stakeholders were interviewed.

3. Literature Review

Overview of Youth Population in Indonesia

In Indonesia, the share of youth NEET fell from 26.6 percent in 2010 to 22.5 percent in 2021. Similar trends were witnessed for the share of rural and urban youth NEET (Table 2). Although, it should be noted that between 2019 and 2021 the share has increased slightly, likely reflecting the effects of Covid-19.

Table 2: Share of youth not in employment, education, or training (NEET) (%)

Year	Total	Rural	Urban
2010	26.6	30.1	22.6
2013	22.9	26.1	19.9
2016	22.5	26.2	19.5
2019	20.5	23.3	18.5
2021	22.5	24.5	21.0

Source: ILOSTAT, 2022

In Indonesia, even though formal education levels have increased during the past decade, the skills gap persists. The unemployment rate for youth continues to be high and employers state that they face challenges in finding high-skilled workers. It was also found that the unemployment rate is high among all senior and vocational high school graduates as well as among workers with a tertiary education (Yanindah, 2021).

Overview of Indonesian Youth Employed in the Agriculture Sector

In Indonesia, as of 2020, approximately twenty percent of employed youth were entrepreneurs. Of the total youth entrepreneurs, more than 50 percent operated either in the retail trade and car reparation and agriculture, forestry, and fisheries sectors. In terms of the scale of their business, only about six percent had one to four employees in 2020, most operated alone (United Nations Development Programme (UNDP) and Islamic Development Bank (IsDB), 2022).

Current Initiatives Driving Youth Entrepreneurship

Given the backdrop discussed above, the following section summarizes some key initiatives on youth engagement and entrepreneurship in the agriculture sector related to our framework's four key aspects.

1) Policy and Regulatory Environment

Some key policy initiatives focusing on youth employment, entrepreneurship, and the overall agriculture sector are discussed below.

- The Youth Entrepreneurship and Employment Support Services (YESS) Programme

The overall objective of the Youth Entrepreneurship and Employment Support Services Programme (YESS) is to create opportunities for rural youth to build their economic livelihoods through rural entrepreneurship or employment. The program aims to increase their engagement in the rural sector, contribute to sustainable rural transformation, and develop a new generation of young farmers, agribusiness entrepreneurs and rural supply chain actors. The implementing and execution agency for the program is the Ministry of Agriculture. The program receives donor support from the International Fund for Agricultural Development (IFAD). The duration for the program 2018-2025. It has four components: i) rural youth transition to work and ii) rural youth entrepreneurship focus on building the skills-sets of the rural youth and business development services, and creating employment opportunities; iii) investing for rural youth links the youth to financial institutions and provides initial investments for young entrepreneurs; iv) enabling environment for rural youth aims to build a conducive policy environment where the young rural workers and entrepreneurs can thrive. The main outcomes of these components are: (i) young people acquire skills that enable them to take advantage of employment and business opportunities; (ii) young small farmers, rural entrepreneurs and small and medium-sized enterprises (SMEs) access markets and services in the targeted value chains, and; (iii) young smallholder farmers, rural entrepreneurs, and migrants and their families have access to financial products and services to finance their businesses (IFAD, 2020).

- The National Medium-Term Development Plan For 2020-2024

One of the aims of the plan is to strengthen entrepreneurship, micro, small, and medium enterprises (UMKM); and cooperatives. It focusses on enhancing the quality of life for youth by strengthening institutional capacity, strategic coordination across stakeholders, and developing the role of the business community and the people in providing integrated youth services, including facilitating positive creative spaces for youth. Improving skills of tertiary education graduates through the development of adaptive study programs and learning curriculum designs that are in line with industry and regional development needs, expanding certification and programs to accelerate work waiting periods, and entrepreneurship training to encourage the growth of young entrepreneurs are other key relevant aspects discussed in the plan (Republic of Indonesia, 2020).

- The Agricultural Young Entrepreneurs Planting Programme (PWMP)

The Ministry of Agriculture through the Agricultural Human Resources Extension and Development Agency (BPPSDMP) has implemented an activity program for growing young agricultural entrepreneurs (PWMP). Given the declining interest of young people to work in the agricultural sector, the strategy is to strengthen agricultural human resources, by changing the perception of the youth that the agricultural sector is not only the cultivation of crops, but agribusiness encompasses upstream to downstream subsystems which actually provide a wide variety of employment opportunities and business opportunities. Another strategy is to cultivate the spirit of entrepreneurship and increase entrepreneurial activities so that agricultural college graduates become more job creators. The program has partnered with several academic universities and agriculture extension colleges in the country (BPPSDMP, 2022).

- The National Strategy on Youth Entrepreneurship

A draft national strategy for youth entrepreneurship was prepared in 2020 and a finalization meeting was held in 2022. It is an effort to fill gaps in youth entrepreneurship development policies in Indonesia and become a reference for the central and regional governments in implementing it. Some key components of the strategy are (UNDP and IsDB, 2022; Ministry for Human Development and Culture, 2022):

(i) a direct entrepreneurial support environment (namely, families and communities) and efforts to increase entrepreneurial capacity and competence
(ii) the economic situation that affects people's purchasing power, which in turn affects business prospects and marketing of youth business products
(iii) policy and institutional support
(iv) vulnerability factors e.g., natural disasters, and the COVID-19 pandemic

2) Institutional Environment

Some key institutional initiatives focusing on youth entrepreneurship in the agriculture sector are discussed below.

- Bank Rakyat Indonesia (BRI)

Bank Rakyat Indonesia (BRI) is one of the largest state-owned banks in Indonesia. Micro banking is a critical component of its business model. It has expanded its micro banking reach through geographical expansion and by partnering with other financial institutions serving microenterprises and low-income households. It has established smaller, cost-effective sub-units called teras. Through BRILink agents it identifies and provides service to customers who might normally be beyond the reach of BRI unit offices applications (Rosengard, 2022).

- Syngenta Foundation for Sustainable Agriculture and Yayasan Agri Sustineri Indonesia (YASI)

SFSA is a not-profit organization focused on strengthening smallholder farming and food systems by catalyzing market development and delivery of innovations, while building capacity across the public and private sectors (SFSA, 2022a). In Indonesia, SFSA has entered a long-term collaboration and appointed Yayasan Agri Sustineri Indonesia (YASI) as their strategic partner in Indonesia, with the aim to further a common commitment to promote sustainable agricultural practices and innovations that can improve the livelihoods of Indonesia farmers and their communities. YASI is a not-profit organization which is particularly focused on promoting sustainable agriculture and improving farming systems and livelihoods in rural communities (SFSA, 2020).

One of the key initiatives by SFSA in Indonesia is to support entrepreneurs through the Pancer Tani (Centre of agriculture) model. It is a multi-service platform initiated by the SFSA and develop further by YASI to cater the needs for local smallholder farmer. It provides economic opportunity for communities living in remote areas to develop and strengthen agricultural and business knowledge, capabilities and entrepreneurship skills. To deliver these aims, SFSA Indonesia provides professional mentoring and training. Pancer Tani can help solve challenges that farmers face including price uncertainty, market fluctuations, low productivity, agronomic knowledge gaps, low success rates when farmers do their own horticulture seedlings, weather related challenges and market access issues. YASI initiates capacity building to train not only the owners to become entrepreneurs but also farmers with good agricultural practices. Together with the entrepreneurs, YASI field Officers creates demo plots to identify new crop varieties for improved productivity. Once the Pancer Tani model is proven to be working in that area, YASI makes sure to support entrepreneurs to expand their business. To make this model operate efficiently, YASI also cooperates with financial institutions, Credit union, rural banks, input suppliers, mechanization service operators, and national and local seed producers (SFSA, 2022b).

- Agriculture Extension System

The country has a wide agriculture extension system with three types of extension workers-public, private, and self-help/voluntary. The public extension service is the main extension provider, but it is constrained in reach and capacity. The private extension workers who are an important source of information for the farmers have an even more limited reach due to cost constraints. A third emerging category is for villages to hire “extension workers” at the village level (World Bank, 2020).

3) Technical and Business Infrastructure Environment

Indonesia has become one of the largest and the fastest growing digital economy in the region. But issues of availability and affordability constrain the adoption of fixed broadband, while network congestion impacts the quality of available mobile broadband (World Bank, 2021a).

The country is witnessing a growing demand for a more diverse range of food products, but significant bottlenecks need to be addressed. Labor productivity continues to be low due to several factors. There is lack of market access, limited adoption of improved technologies, and limited access to extension services. Infrastructure bottlenecks including access to irrigation and rural roads, logistical bottlenecks, weak food safety systems, and product quality deficiencies, inadequate value chain financing, and weak technical capacity and entrepreneurship skills all contribute to the weak performance of the sector. Poor agricultural practices contribute to increase in susceptibility of crops to pests and diseases while increasing greenhouse gas emissions (Choudhary, 2022).

4) Individual Factors

In addition to self-confidence, motivation, curiosity, social skills and persistence, youth also highlight responsibility, patience, discipline and cooperation/teamwork as some of the key attitudinal skills they would need. Creativity, digital skills, communication skills, and social skills as key other skills needed for the future (United Nations International Children's Emergency Fund (UNICEF) and Oxford Policy Management, 2019).

4. Case Studies of Youth Entrepreneurs

We present case studies from 21 entrepreneurs from Indonesia at the individual level. They highlight the entrepreneur's nature of business and the challenges and support received in setting up and expanding their business. The case studies includes some entrepreneurs who are members of SFSA's 'Pancer Tani' (discussed in the previous section) and others who are not members. The case studies also discuss individual attributes which contribute to the success of an entrepreneur.

Entrepreneur 1: Riatin, Agricultural Kiosk & Buying Selling Fresh Produce Business, Petungsewu, Dau, Malang (Non-Pancer Tani)

Introduction

Mrs. Riatin is 57 years old with elementary school education. She has an agricultural kiosk and buying selling fresh produce business in Petungsewu, Dau, Malang.

Background and the nature of business

'Having a keen eye for farmers' need is essential. Another important source of knowledge comes from interactions with agricultural input suppliers.'

She started with buying and selling vegetables from local farmers. In the early 1990s, she observed the existence of an opportunity to provide farmers modern inputs. She set up the agricultural input kiosk in addition to her original business as a vegetable trader. At the time, her husband worked overseas as a migrant worker. They already built a house using the remittance.

In 2000, she used her house as collateral for a bank loan for $ 70 from a government micro-finance program to start the business.

She learnt by doing. Having a keen eye for farmers' need is essential. Another important source of knowledge comes from interactions with agricultural input suppliers. She also discusses with fellow traders about the market situations and products.

She is familiar with deferred payment method. When buying vegetables in the morning from farmers, she doesn't pay them. In the afternoon, after selling the vegetables, she gives them cash back. However, she needs to pay cash when buying agricultural inputs from suppliers. Some customers come to the store to buy small amounts of products using cash. She has about 100 regular farmers to work with for this line of business.

To regular customers (about 35 farmers), she gives credit. The total amount of extended credit for every season is about $ 3500. They don't need to pay back until the harvest. Normally, the period is about 3-4 months. In case of a bad harvest, farmers are unable to pay back, and but she continues to extend credit in the next season. They live in the same community, and it is important to help to each other. The overall bad loan ratio is only about 10%. Even for those with bad loans, the customers try to give her fresh vegetables as a way of showing gratitude.

Overtime, she has expanded her business by opening a convenience store next to the kiosk. Four family members are involved in the three family businesses: her husband, two children, and one son-in-law. The oldest son opened a branch in another village, which is doing even better than hers. There are four local competitors.

Her store's turnover dropped about 10-20% during Covid-19 restrictions.

Challenges

One challenge is on how to better connect with suppliers and widen the market.

Entrepreneur 2: Muhammad Luthfi, Land Preparation Mechanization Business, Kademangan, Pagelaran, Malang (Pancer Tani)

Introduction

Luthfi is 29 years old. He has a land preparation mechanization business in Kademangan, Pagelaran, Malang.

Background and the nature of business

After dropping out of secondary school, he first worked at a sugarcane mill to crush sugar canes. After 6 months of joining, he quit. The next five years, he worked as an assistant tractor operator to plough land.

The business has peak and slack seasons. The peak season lasts about 3.5-4 months. During which, he can plough 32 hectares of paddy field in the local area for 50 customers. The charge is $ 90 per hectare. In the slack season, he ploughs 3 hectares of corn field (mainly his own field) and raises vegetable beds of about 20 hectares.

During the peak season, routine maintenance is essential. He changes the oil filter every two weeks. For major repairs, he goes to nearby garages. He hires an assistant during the peak season. The rate is Rp[1] 20k per hectare. Besides the ploughing service, he owns a farm. His wife has received a grant to build greenhouse from an NGO supporting female farmers. For the current business, he bought a used power tiller with Rp. 23 million in 2017, of which Rp 17 million came from selling a cow and 6 million stemmed from his own savings from previous jobs.

Overall, he is happy with the earnings. He estimated that he can save more than his peers who have migrated to work in cities thanks to the low cost of living in the village. In addition, he is proud of owning a business. His father encouraged him to stay locally and figure out a livelihood.

The business is competitive. There are 20 competitors. Because of competition, the rate in local areas has dropped from Rp 2.2 million/h to 1.4 million/h. The rate for outside villages remains at 2.2 million/h. Despite the competition, he wants to buy a new tractor. He thought the potential of local ploughing can be as high as 100 hectares during peak season. This year, one outsider is providing combine harvesting service in the village. However, he thought combine harvesting is not applicable to this area because of the small farm size and diverse cropping patterns. Because the planting time varies greatly across farms, it is hard to capitalize the scale of combine harvesting.

He does not see any negative impact of Covid-19 on his ploughing service. After all, farmers need to plant their crops regardless of Covid-19.

[1] 1 Indonesian Rupee is 0.000067 USD.

Institutional support

He worked as a hired tractor operator for another three years before being approached by YASI to start the current business. YASI helped him to buy his second hand tractor and develop a three year business plan. Recently, he paid off the installments for his motorbikes. YASI has suggested to him to look at rice planters, considering the intense competition in land preparation service.

'Tried to overcome financial challenges with support from YASI. Applied for loans from BRI but was rejected for having unpaid installments.'

Challenges

He has tried to overcome the financial challenge for purchasing a new tractor. He applied for loans from BRI but was rejected for having unpaid installments.

Entrepreneur 3: Hartutik, Agricultural Kiosk Business, Senggreng, Sumberpucung, Malang (Pancer Tani)

Introduction

Hartutik is 40 years old with a junior high school education. She has an agricultural kiosk business in Senggreng, Sumberpucung, Malang.

Background and the nature of business

She worked in Taiwan as a nanny for seven years to help pay her home mortgage. After returning home, she initially tried to raise ducks for 6 months, but the business failed. In 2012, she started the current business by using her savings. None of her family members have a business background. She received help from suppliers and YASI.

She has 50 regular customers. The monthly turnover is 20 million. She doesn't have any helpers. She rides a motorbike to the field. She buys products from suppliers using cash. Most customers pay her cash. She gives 20-30% of customers' credit. She has forgiven a few bad loans.

There are four competitors in the area. They do discuss matters related to the business and share inventories.

Institutional support

YASI gave her training on marketing, management administration, bookkeeping skills, and also a link to competitive supply channels so that she can have better price & input supply access.

Challenges

She would like to expand her business to sell fertilizers. But it requires more working capital. She is reluctant to borrow from banks. She is afraid of owning a debt. After all, she worked in Taiwan mainly to help pay off the family debt. That experience has haunted her.

'Would like to expand the business to sell fertilizers but am reluctant to borrow from banks and feel afraid to have a debt.'

Entrepreneur 4: Sana'i, Organic fertilizer Business, Kedungkandang, Malang (Pancer Tani)

Introduction

Sana'i is 38 years old. He didn't finish his bachelor's degree. He learned Islamic studies for 2 years then left university. He has an organic fertilizer business in Kedungkandang, Malang.

Background and the nature of business

Sana'i is has a physical disability in his hand. His wife has challenges in walking. He has three daughters. The oldest one just got married.

He started worked in a printshop for some years. Then he sold newspapers in a street stall for 15 years, but unfortunately he and many of his colleagues were laid off because of the pandemic situation. He has been actively involved in a disabled group. Through the engagement, he got to know some officials and donors. As a second line of job, he provided administrative services such as certificates printing production.

He noticed that home gardening had picked up because of increasing work from home associated with Covid-19 restrictions. Consequently, there was a rising demand for garden soil and organic fertilizer. The materials for producing them, such as the waste of sugar cane production, rice husks, banana leaves, cow dung, and goat dung, are locally readily available. He saw the market potential of producing organic fertilizer. He learned the technical know-how from other members of Pancer Tani and the internet. A few friends provided in-kind support to help set up the business in February 2022.

Since he is disabled, he gets help as needed. His wife and mother also work on the business part time. During their spare time, they peel off the skin of vegetables (shallot) and earn about $ 2.3 per day. The organic fertilizer is put in a 10kg bag. The products are mainly sold to members of the community. The business is already profitable.

Overall, he felt Covid-19 has had a positive impact on his business.

Institutional support

YASI gave him a grant of $ 245 to build a shelter, purchase a used machine, introduce new sources of raw materials, and to get the organic fertilizer tested by a local university. After the test, the contents of the fertilizer can be labeled on the package.

'My successful story will set an example and inspire other disabled people.'

Right now, he is focusing on getting the product certified by a local university. With the content label, the products can be sold to a wider market, like other nearby communities. YASI is thinking of hiring him as a trainer for other potential disabled entrepreneurs. His successful story will set an example and inspire other disabled people.

Entrepreneur 5: Kadar Susilo, Vegetable Seedling Nursery Business, Tulungrejo, Bumiaji, Malang (Pancer Tani)

Introduction

Kadar Susilo is 40 years old with a junior high school education. He has a vegetable seedling nursery business in Tulungrejo, Bumiaji, Malang.

Background and the nature of business

After leaving school, he first worked on his father's vegetable farm. Then he worked for other farms as a laborer. Through the work, he learned how to plant different kinds of vegetables.

Later, he noticed that many local farmers were producing broccoli and they had to purchase the seedlings from a nursery about 20-25 km away. Seeing the market potential, he set up a broccoli nursery by renting 200 square meters of land. The initial investment was $ 65 with Rp 300k for seed and Rp 700k for land rental. The money came from his labor income.

In order to learn the technical knowhow, he visited the broccoli nursery. By pretending to be a customer, he probed the sellers on technical questions. Given his previous farming experience, he quickly figured out how to run a broccoli nursery. The business was doing well until the seventh year when the price of broccoli collapsed. Due to business loss in that year, he shut down the nursery.

But he didn't give up. He quickly set up another nursery focusing on Chinese cabbage. He chose Chinese cabbage for several reasons. First, the seed is cheaper. Second, there was no local nursery for Chinese cabbage yet. Third, many local farmers had already planted Chinese cabbage, and there is a market demand for the seedlings.

In order to reduce the cost and make the production more environmentally sustainable, he came up with a few innovations. For example, he replaced plastic wrapper with paper or jackfruit leaves, which are biodegradable. Recently, under the information provided by YASI, he has purchased trays from a wholesale distributor which offer a cheaper price tag.

The seedlings of Chinese cabbage were sold well. Built on the success, he introduced more varieties, including chili, tomato, and broccoli. The most profitable one is still Chinese cabbage.

Right now, he has about 70 regular customers. Among them, 20 are loyal customers. The monthly sales are $ 641, and the profit rate is as high as 50%. He reinvests the profit to expand his business.

He doesn't treat other nurseries as competitors. Instead, they collaborate by sharing orders. If he gets a very large order, he asks another nursery to help out. Similarly, he receives sourcing from other nurseries as well.

Institutional support

'Building greenhouses is the key to expansion of the business.'

Building greenhouses is the key to expansion of the business. Initially he obtained a loan of Rp 25 million from the Bank Jatim. But after 3 three years, the bank required him to use his house as a collateral to renew the loan. He switched to BRI, which has a lower requirement for collaterals. BRI is one of government partners who distributes micro credit program or Kredit Usaha Rakyat (KUR) or People's Business Credit to finance micro, small and medium business. The interest rate is low, only 3.6% per year. The duration is one year. One disadvantage is that he had to start from a small loan amount of Rp 5 million in the first year. After successfully paying off the loan on time, the next year, he applied for and got a loan for Rp 10 million. This year, the amount has increased to 25 million. Using the loans, he has built four greenhouses since February 2020.

YASI offered him $ 128 grant to buy seeds and an insect net. YASI gave him knowledge for greenhouse and management of irrigation system. YASI also provided him information on branding and modern breeding trays as well as trainings on bookkeeping and digital platform.

Thanks to the greenhouses, the business capacity has increased. He is now hiring two helpers. Two to three family members work on the nursery when needed.

Challenges

The seed suppliers are 3 to 8 km away. He needs to pay cash to buy seeds. For customers with small order, they have to pay cash. For large orders of more than Rp 10k, he requires 50% deposit and the rest in four installments. So far, there are seven bad loans. Most common reasons for the default are failed cropping business and sometimes the customer has accumulated too many debts from other lenders. Considering the financial difficulties of borrowers, the chance of getting the money back is slim. His strategy is to give up if the borrowers still don't pay back after approaching them three times. These customers normally don't come back anymore.

There are three major challenges. One is to manage seasonality. There are peak and slack seasons. He must time the nursery in lines with the planting seasons for various vegetables. Because of the climate change, the timing has become increasingly more difficult. The second challenge is water shortage during the dry seasons (June-September). The third challenge is pest. Each year, the pests are different. He often asks farmers how they treat different pests and what kinds of pesticides are needed. So far, the problem is manageable.

Entrepreneur 6: Wijiati, Buying Selling Fresh Produce Business, Wiyurejo, Pujon, Malang (Pancer Tani)

Introduction

Wijiati is 30 years old. She has a buying-selling fresh produce business in Wiyurejo, Pujon, Malang.

Background and the nature of business

One year after graduating from junior high school, she got married. She worked on her husband's vegetable farm for 13 years. It was harsh work. She had accumulated debt from her parents' medical bills and her husband's vegetable farm was high as $ 4,808. She really wanted to earn more money to help pay off the debt and escape from the harsh work on the farm.

Her idea was to sell vegetables. But her husband thought it was better to focus on farming. Despite his reluctance, he gave her $ 128 as starting capital. With the seed money, she began to collect vegetables (only chili) from her family farm and surrounding larger collectors. She would sell it to the wet market (20 km away). But the profit was limited.

One of her cousins and a neighborhood farmer (a close friend) asked her to collect their vegetables and sell it to the wet market. Thus, she began to collect vegetables from neighboring farms during daytime and sell the vegetables to bigger sellers in the wet market. For eight months she would ride her motorbike with loaded vegetables on the back from 8pm to 1am every night. The business turned out to be quite profitable.

However, she faced a bottleneck. The loading capacity of her motorbike is only 300kg. A friend in the wet market helped to transport her vegetables in a pickup truck. Immediately, he realized that in order to expand the scale of sales, she must buy a pickup truck. One month later, she bought a pickup truck at $ 4,551 in March 2022. Her husband contributed $ 2,885. Another $ 641 came from her profit of selling vegetables in the past 9 months. In addition, she borrowed $ 1,026 from two friends at no interest. Since she does not have a driver's license and driving skills, now it is her husband who drives to the wet market every day.

Thanks to the pickup truck, her business has significantly expanded. Before buying the vehicle, she could only load 300kg of chili. The price is between Rp 12 and 15k per kg. In addition, she has to limit the vegetable to chili because of easy transportation and because chili is harvested almost all year long. Because chili is a standard produce and widely traded, the profit margin is only about 15%. There is a risk with chili trade. Fresh chili must be traded within two days. The price can fluctuate wildly from the morning to the evening, in particular during raining days. She suffered a big loss one time. In the morning, she bought chili from farmers at $ 1.92 per kg, but the price dropped to $ 1.28 per kg at the wet market in the evening. She lost $ 192 in one day. Another collector stopped selling chili after this shock, but she persisted.

She can now collect other vegetables as well, such as cabbage, tomato and Chinese cabbage. She hires 1-3 part-time workers to help sort and load vegetables. Because the business is so successful, she has paid off the $ 4,808 of family debt. Her husband has rented out the vegetable farm and focuses on the vegetable trading business. As he needs to drive the pickup to the wet market every evening, it would be impossible for him to work full time on the farm.

She normally pays cash to regular suppliers. In addition, she offers support when they are in a difficult financial situations. Some farmers trust her a lot and let her to hold the payment until the end of the harvesting season. She has 50 loyal suppliers. In the wet market, she has six regular buyers. They either pay her cash or have delayed payment up to three days.

There are three competitors in the local area. If the volume of the collection is not big enough to fill the pickup truck, she buys some from her competitors at half of the markup rate. If the volume of the collection is very large, she sells them to other collectors at half the markup rate.

Institutional support

YASI offered a grant to help build a small warehouse for sorting, grading and packing. In addition, YASI has introduced her to some corporate customers. She sent vegetable samples to the customers. However, in the end, she decided not to sell vegetable to the corporate customers, because she's afraid that she won't be able to consistently provide the vegetables in the required quality standard. She found the trainings on marketing, administration management, and bookkeeping offered by YASI very helpful for her to keep track of the business performance. Besides YASI, she has not received help from other government agencies or NGOs.

Challenges

'Price fluctuation and dealing with poor quality vegetable are two key challenges.'

The biggest challenge is to manage the price fluctuation. Price fluctuation is highly correlated with weather. In the wet market, which operates in the late evening, vegetable prices often drop in the event of rain. However, collectors buy vegetables from farmers in the morning at a fixed price. The weather conditions in the morning and evening can vary. Another challenge is dealing with wastes associated with bad quality. Vegetables with bad quality are hard to sell in the wet market and thus have to be dumped.

Entrepreneur 7: Mr. Firman, Vegetable Seedling Nursery Business, Tawangsari, Pujon, Malang (Pancer Tani)

Introduction

Mr. Firman is 22 years old. He has a vegetable seedling nursery business in Tawangsari, Pujon, Malang.

Background and the nature of business

From the third grade, he began helping in his father's vegetable nursery business. He has always been interested in agriculture. One time at junior high school age, he asked his teachers to teach him the practice of pollination, unfortunately the teachers had to refuse it because they did not have the sufficient knowledge and other supporting means. "we can't conduct pollination here, just like the big company did", teacher said. After graduating from senior high school, he worked

full time on the family business. His father has tutored him, transmitting the tacit knowledge to him. He is very keen on learning new nursery technologies and trying them out. For example, unlike his competitors, he uses planting medium instead of planting directly on the ground.

His business model is different from many other nurseries. In his nursery, it is farmers who bring their seed, either kept from last year or bought from the suppliers. Two customers told us why they choose this model. First, they can directly check the quality of the seedlings. Second, they can use last year's seeds. Third, Mr. Firman and his father are very capable, and the service is competitive.

The price is $ 5.13 – 5.77 per 100 seedlings. During the peak season, his first (the second was still in the process to be build) greenhouse run full capacity (30k) for his 15 customers. During the slack season, the utilization rate drops by 10-15% as the number of customers drop to 10. The major vegetable varieties include chili, tomato, Chinese cabbage, and eggplants. His mother and a female relative also help in the nursery whenever needed.

The major investment in the past several years is the greenhouses. His father and him borrowed $ 128 from relatives at no interest. In addition, they did barter with customers, who offered some in-kind support. As a return, the nursery breeds the seedlings for them.

Although there are nurseries in the local area, none of them have the same model as his. So he does not feel any competition. Because of the unique business model, there is no need for him to cooperate with other nurseries.

Compared with his peers, he feels he is earning more. He is very satisfied with his choice. He plans to build three more greenhouses in the next five years with capacity of 50k each. He thought he is highly risk taking with a score 10 out of 10. However, the 2D:4D ratio is rather balanced, not indicating an inborn preference for risk.

Institutional support

YASI has provided some help on how to manage the pest problems. In addition, he looks up the internet for solutions. With a grant support from YASI, the greenhouse was standardized. YASI has offered him a training on bookkeeping.

Challenges

'A major challenge for the business is the pest problem.'

A major challenge for the business is the pest problem. In October 2021, the nursery suffered an 80% loss because of pest attack.

Entrepreneur 8: Yulianto, Buying and Selling Fresh Produce Business (shallot), Donowarih Karangploso, Malang (Pancer Tani)

Introduction

Yulianto is 36 years old, senior high school graduate, and a widower with three children. He has a buying and selling fresh produce business in Donowarih Karangploso, Malang.

Background and the nature of business

After graduating from senior high school, he became a vegetable trader following the steps of his parents, who sell vegetables in a wet market. He collected and sold several kinds of vegetables (chili, Chinese cabbage, and others) for eight years until he was stressed out for two reasons. First, it is quite time consuming to trade multiple vegetables. For example, fresh chili must be sold within two days. Vegetables collected in the morning must be sold in the evening. The time pressure to find buyers is huge. When his wife was critically ill, he could not balance the time between the business and family. In 2019, his wife passed away and left three young children.

One Chinese shallot (small red onion) trader suggested that he focus on only one type of vegetable, such as shallot, since it would be easier to establish a good reputation as a reliable supplier with buyers in wet markets by trading just one produce. Moreover, unlike chili, shallot can be stored for some time, lessening the pressure to trade every day. He also sought advice from other traders on the branding and marketing experience. They offered similar advice. Following their advice, he shifted his trade to shallot.

Shallot is locally produced. Because shallot and garlic are often paired, he also trades garlic, although, it is not locally produced. He collects shallot from local farmers but purchases garlic from other collectors. Besides shallot, he also trades white onion.

The fresh shallots collected from farms come with leaves and dirt. They must be first dried and cleaned. After that, the leaves also need to be cut and extra skins have to be peeled. For one kilo of shallot sold in the wet market, three kilos of fresh shallots are needed. The conversion ratio is about 1:3. During the dry season, there is not much dirt with fresh shallots. He hires two workers with daily wage of $ 12.8 – 19.2. During the rainy season, four workers are needed. Peeling is more labor intensive. Eight to 20 female workers work on peeling depending upon the season. They are paid based on piece rate, Rp 1k per kg. On average, a woman can peel 100kg of shallot. During the slack season, the female workers peel garlic. The rate is lower at $ 0.45 per 20 kg. A woman normally peels 60 kg of garlic.

He has about 30 farmers as suppliers. He pays them cash, sometimes with a 3-day delay in payment. He transports the produce to the nearby wet market with his motorbike. At the wet market, he has 20-25 regular buyers. For new buyers, he requires them to pay cash. For older customers (after six or seven times of transaction), he allows delayed payment.

There are six to eight competitors in the local area. They tread multiple types of vegetables, while he is more focused. Thereby, there is not much competition. He also shares market orders with trustworthy competitors.

Before joining Pancer Tani in May 2020, the monthly net income was $ 96. Now it's about $ 430. He doesn't have any loans. He is afraid of owing a debt. For the next five years, he plans to build another warehouse and buy a vehicle.

He thought he is risk neutral. However, the 2D:4D ratio indicates a predisposed tendency to risk taking.

Institutional support

In May 2020, he joined Pancer Tani and received help from YASI. YASI has introduced him to more distribution channels. He has collaborated with Brawijaya University as YASI partners on the internship and research program. He mentored them and trained students to become the next generation of entrepreneurs in the agricultural sector. These interns have helped widen the marketing channels and also marketing activities that YASI taught him.

'YASI has introduced me to more distribution channels.'

Challenges

He had a big setback in 2018/2019. One outsider buyer in the market initially paid him cash. After several transactions, the buyer requested a delayed payment. Later on the trader ran away. He suffered a loss of $ 3,205. He spread the word about the buyer among the traders. However, since he moved away, it is impossible to get the money back. In addition, his wife passed away in 2019. He said he must be resilient and strong for the sake of his three children. He believes that hardworking would pay off and tomorrow would be better.

Entrepreneur 9: Soyiudin, Agricultural Kiosk Business, Bocek, Karangploso, Malang (Pancer Tani)

Introduction

Soyiudin is 35 years old, a senior high school graduate. He is married with one child. He has an agricultural kiosk business in Bocek, Karangploso, Malang.

Background and the nature of business

He learned mechanics in the occupational high school. He worked as a mechanic for two years after graduation. One relative encouraged him to enlist in the military. He worked in the military for 15 years, starting 10 years in Kalimantan (Borneo island) and 5 years in Java. On his service period in Java, Soyiudin was also a hard-working farmer, cultivating his large family owned land (~5 hectares). However, his hard-working attitude alone wasn't enough guarantee to assure a good crop production at the end of each season. Access to the agricultural means wasn't easy; a common hurdle for smallholder farmers. This unpleasant condition, and his status as military officer forced him to stand out, leading the crowd (its surrounding smallholder farmers) to find a solution for improved production and a better life.

Leveraging on his network, Soyiudin was capable of finding several ideal ag-inputs distributors who are capable of providing him and his fellow farmers required inputs, and with a slightly lower price tag. Considering that he could generate some considerable profit while also helping the neighboring farmers to access inputs, he braced himself to resign from military services and deepen his knowledge on agriculture and agri-business.

Seeing the need of farmers for fertilizer, he decided to open an inputs shop to sell fertilizer and other agricultural inputs, such as pesticides, in another village in 2019. He ordered 40 tons of fertilizer with $ 4,808 of his own savings accumulated form the military service. The business was doing well. But the success attracted jealousy from a competitor. The competitor spread rumors about him and applied witches on him. In the end, he decided to shut down the shop in 2020.

He paused for one year. But his old customers kept coming back, asking him to sell them necessary agricultural inputs. In June 2021, he opened the current shop, mainly selling pesticides. He learned the knowledge about pesticide from one of his father's friends, who had recently retired from a big pesticide company.

In the peak season, his shop hours are from 5am to 2am. There are at least 50 customers per day. The number drops to 30 customers during slack seasons. The customers must pay cash. One key reason for this stringent requirement is because of a bad experience. When running the first shop, he extended credit to farmers. One farmer owed him $ 2,885. He could do nothing.

His shop is on the roadside. Salesmen of major pesticide companies often stop by to promote their products. Right now he has about 20 suppliers. The suppliers allow him delayed payment up to 30-40 days. If he pays within 15 days, he gets a 5% discount. Normally, he just sends the payment within 15 days.

There are four competitors in the local area. He doesn't have any collaboration with them. But he does collaborate with a few shops outside the village in sharing marketing information and inventories.

His business is doing well. The monthly net income is about $ 135.

In hindsight, he thought the military training on discipline is useful for his entrepreneurship. In addition, he has access to the network of veterans, who provide some information and help.

In the next five years, he really wants to improve his business. Currently, among the five local agricultural kiosks, he ranks the last. He would like to climb to at least no. 3.

He thought he is risk neutral with a score of five. His 2D:4D ratio is 1:1.

Institutional support

'YASI gave me a grant, helped me to get a business license, and also provided advisory support on rebranding and training on online marketplace.'

Right after he set up this new shop, YASI invited him to become a Pancer Tani member. He was offered a $ 160 grant to buy stock and build a warehouse. YASI advised him on rebranding the store front with a new look and provided more competitive supply channels. It also helped him to get a business license. Although YASI offered him a training on online marketplace, he has not adopted it yet.

Entrepreneur 10: Ngali, Buying and Selling Fresh Produce, Temas, Karangploso, Malang (Non-Pancer Tani)

Introduction

Ngali is 56 years old. He has a business buying and selling fresh produce vegetables business in Temas, Karangploso, Malang.

Background and the nature of business

He worked on shallot farming after graduating from elementary school on 0.5 hectares of land from 1980 to 2012. Because he could not inherit the land from his parents, he stopped shallot farming and moved to his wife's house. Initially, he worked as a day labor for 3-5 months. Then a neighbor asked Mr. Ngali whether he could sell vegetables produced from the neighbor's farm. He gladly helped. The experience prompted him to switch to the vegetable trading business.

Because local people know him as a farmer and day labor, he goes to neighboring villages to collect vegetables and sell them in a nearby wet market about one kilometer away. The major means of transportation is motorbike. The wet market is in early morning. He goes to the wet market at 1:30am and comes back home at 3:00 am. After coming home, he sleeps for a few hours and gets up for breakfast. Afterward, he travels around from 7:30am to noon to collect vegetables from the farmers. In the evening, he and his wife sort and clean the vegetables.

He started with only four regular farmers as suppliers. Over the years, the number has increased to 30. They are located within a radius of half a kilometer. The major traded vegetables include scallion, bok choy, and celery.

During early peak season times (October), the daily sales are 400-500kg. while in the peak season (Nov - Dec), the sales reach 550-600kg per day, while in slack seasons, he can only sell 100-200kg per day. The net income in the peak season is about $ 128 – 256 per month.

There is a competitor in the village. He doesn't collaborate with the other traders. Currently he has a loan of Rp 25 million from BRI. He used the loan for renovating his house and supporting his trading business. In the next five years, he plans to buy a vehicle so as to transport more vegetables.

His self-evaluated risk score is 9 out of 10. But his 2D:4D ratio is rather balanced.

Challenges

He has not received any help from the government or NGOs. A major challenge is that he cannot get enough vegetables to sell in slack seasons. He has to buy some from bigger collectors with a low margin.

'I have not received any support from the government or NGOs.'

Entrepreneur 11: Didin, Post-Harvest Mechanization Service (mobile rice milling business), Temas, Karangploso, Malang (Pancer Tani)

Introduction

Didin is 34 years old with an elementary school of education. He is married with two children. He has post-harvest mechanization service (mobile rice milling) business in Temas, Karangploso, Malang.

Background and the nature of business

From the age of 14-15, he started working in the family business, producing and selling soybean cakes, for five years. However, he didn't feel the job was suitable for him because he has a soft heart. When elderly purchased cakes, he tended to give them more. However, the margin was very thin. In doing so, it was very hard to make money. At age 19, he decided to switch to another career. At the time, there were a few mobile rice milling service providers in the village, including one owned by a friend. He worked for his friend for two years like an apprentice. During the two-year stint, he learned how to drive vehicles, operate the machines of rice milling, repair the machine and vehicle, and service customers. After feeling confident that he could run the business independently, at age 21, he applied for a loan of $ 966 from BRI using three motorbikes as collaterals and bought a used mobile rice milling vehicle. The diesel engine of the vehicle has been modified to power the rice milling machine.

Currently, there are 19 rice milling service operators in the village, each has his own route and regular customers. Every day, he leaves home at 8am, driving along a fixed route, which is about 10 km one way. When he spots paddy bags left by regular customers outside their doors, he stops to provide the milling service. He has about 70-80 customers. Only 15-20 of them call him to schedule a time for milling. Most of the customers just follow the traditional way to leave rice bags outside.

The milling process lasts for seven minutes. He charges $ 0.96 for one bag of paddy (25-26 kg) for milling if customers retain the husk. If they do not want the husk, he will charger a lower price of $ 0.13 per bag, because the husk can be sold to other farmers with livestock. The husk price is $ 0.13 per kg. Each bag of paddy produces 13 kg of husk. So it is more profitable for him to retain the husk.

The cluster of mobile rice milling service started before 2000 by an outsider. After seeing the business was profitable, over time, more people ventured into the sector. This village has become a cluster, serving customers within at least 10km of radius. As shown in his experience, the tacit knowledge spillovers within the village. In addition, when seeing an operator's vehicle break down, fellow operators often stop by to offer help, like towing the vehicle.

His self-evaluation of risk score is 5 out of 10. His 2D:4D shows a risk preference.

Institutional support

At the age of 21, he applied for a loan of $ 966 from BRI using three motorbikes as collaterals and bought a used mobile rice milling vehicle. The diesel engine of the vehicle has been modified to power the rice milling machine. He has received some help from YASI, including banners, shirts, recommendation for new routes, conduct marketing activities and also to develop a 3 year business plan. He has paid off his loans.

Challenges

'Rising subsidized diesel prices and retaining customers are two key challenges of the existing business.'

The business runs into two major challenges. One is rising diesel price. Compared to last year, the subsidized price has spiked by 30%. As a result, his profit has declined by 10-20%. In addition, he is worried the number of farmers will decline along with urbanization. The other challenge is how to retain the customers.

Entrepreneur 12: Ricky Hadimulya, Crop Breeding And Nursery Business, Dramaga, Bogor (Non-Pancer Tani)

Introduction

Ricky Hadimulya has an undergraduate degree. He has a crop breeding and nursery business in Dramaga, Bogor.

Background and the nature of business

Ricky's parents work in a construction company and do not have a business background. Ricky received his bachelor's degree in 1993. During his undergraduate, he received a two-month training at ORISA Sukabumi. He considers the training to be very important for him to learn the importance of discipline. After graduation, he worked in three companies related to seed and nursery for 10 years. From these jobs, he accumulated the technical knowhow on crop breeding and nurseries. In particular, he learned tremendously from an US expert in one of the companies.

In 2003, he rented 5,000 m^2 of land together with two partners and started the nursery business. He grew the business step by step. He exported ornamental plants for some years, but eventually shut down this line of business because of the high bureaucratic barriers. He was also hired as an

agricultural consultant for another company. He quit the job in 2013 to focus on his main business.

Currently, he has four joint ventures, three local and one in another area. The local ones include, a corn seed breeding field, a nursery of vegetables and plants, and two green houses for breeding new local varieties of cantaloupe. He has hired five regular employees. During peak seasons, he employs two or three more part-time staff. In addition, he has developed a student internship program with a university in west Java. Five student interns are now working here.

The business idea stemmed from a former Ph.D student of Bogor Agricultural University (IPB), whose father is a friend of Mr. Ricky. The student has graduated and is now working for a leading palm company. He still comes to visit and advise the research when he has time. As part of his dissertation research, he was involved in a project to develop local cantaloupe seeds jointly with a fruit farm owned by the family of the second president of Indonesia. After eight year's research, the project was called off. The student thought there is a great potential of continuing the breeding research for three reasons. First, there is a market potential for local seeds. The imported seeds are very expensive, Rp 5-15k per seed. The demand for cheaper high-quality local varieties is high. In addition, the imported seeds are not very suitable to local environment and prone to diseases. Second, a lot of knowledge about cantaloupe breeding has accumulated over eight years' trial and errors. Third, Bogor is a good area to develop cantaloupe seeds. Given its tropic humid climate, if the seeds are resistant to disease in this environment, they will be less prone to disease elsewhere. The student strongly recommended him to take over the project. One business partner liked the idea a lot, persuading him to pursue it. They established a joint venture. They rented the land on a two-year lease and built the new greenhouse. After the two-year lease, they plan to renew it for five years.

Among 50 of his colleague classmates, about 15 still work in the farming sector. A few have become very successful seed breeders of potato, tomato, and chili in the highland areas. These entrepreneurs were average students back in college. They were also more likely to be rebellious. They are honest and can work with others. They were active in various student organizations. For example, he participated in a student natural conservation group. He learned how to communicate with the farmers and identify various species.

Despite the challenges, he still wants to expand his business. In the next couple of years, he plans to build another greenhouse, separating the breeding and production of cantaloupe. Currently, the two activities are under the same greenhouse. In addition, he would like to help more smallholder farmers by providing better seeds and technical knowhow.

He does not think of himself in favor of risk taking. He scores 5 out of 10 in risking taking. His 2D is longer than 4D, indicating a tendency of risk aversion.

'The secret to success is partnership with other people who have complementary skills and risk preferences.'

Despite his risk averse preference, he has successfully established four ventures. The secret is in partnership with other people who have complementary skills and risk preferences. For example, one of his business partners has a marketing background. He has a strong risk-taking preference. He encouraged Ricky to set up the cantaloupe breeding greenhouse. Another advantage of joint ventures is to solve the financial constraints. Ricky doesn't like loans. By inviting business partners with financial resources, the financing problem can be solved. Finally, he reaches out to establish partnerships with universities on joint research and internship program. Because he is a graduate, he has a wider social network.

He lists the following characteristics as key features of successful entrepreneurship: discipline, resilience, honesty (integrity), and passion (drive). To identify potential entrepreneurs, passion should be high on the list. A person must love what he does. For external donors or NGOs, continuous mentoring is essential for the growth of young entrepreneurs.

Challenges

They aim to develop a new local variety that reaches the sweet level of 16 (highest level is 18) and is disease resistant. The sweet level of traditional local varieties is only 11. They buy many different important seeds and conduct crossbreeding experiments. However, there is a huge uncertainty for this kind of research and development project. It is unknown when the new variety can be successfully developed. Before that, there are no cash flows coming in. In addition, climate change is another big risk. New varieties may be prone to weather changes.

Entrepreneur 13: Andreas and Lina, Hydroponic Organic Vegetable Farming, Cijujung, Bogor, West Java (Non-Pancer Tani)

Introduction

Andreas and Lina have completed high school. They have a hydroponic organic vegetable farming in Cijujung, Bogor, West Java.

Background and the nature of business

Andreas is 39 years old, and Lina is 41 years old. Both of them have high school education. They used to work in the same auto part company. After working for 10 years in the company from 2003 to 2013, Lina worked in the hospitality industry until the pandemic. The pandemic struck a blow both to the hospitality industry and the auto part company. Andreas was asked to take an early retirement after working in the company for over 18 years from 2001 to the early 2020.

During the Covid-19 lockdown in 2020, they had to make living. Lina sold vegetables on WhatsApp for a friend's vegetable farm. Andreas did food delivery for online orders. Later on, they opened a kiosk selling fresh vegetables near a school. The business was doing well. After dropping off at or picking up their kids from the school, many parents bought vegetables from their store.

However, because of proximity to customers and suppliers, they caught Covid-19 twice. Lina's sister died of Covid-19 at age 48. They were scared and decided to shut down the store. They tried to apply for unemployment insurance, but to no avail. They sold one of the two motorbikes to pay school fees of their three children and other living expenses. When preparing for their hydroponic farm, Andreas tripped in the front gate with a slippery slope to the street and hurt his leg. He rested for three months.

When they were staying home, they did some research and decided to try vegetable farming. They visited their friend's vegetable farm to learn the basics of vegetable farming, applying fertilizer and treating pesticides. They also observed how the frames and tables were set up for hydroponic farming.

In the end, they chose hydroponic organic vegetable farming for several reasons. First, hydroponic farming is land saving and gives a high yield. Their land size is quite small. Since hydroponic farming does not need soil, the plants can be grown on top of tables above the ground, even with different vertical levels. In addition, the production cycle of hydroponic farming is faster than farming on the ground. For example, spinach, bok choy, and lettuce can be harvested within 3, 4, and 6 weeks, respectively. For each table, the output per season is about 40kg. The yearly output is over 400kg.

Second, the demand for organic vegetables has rapidly increased after Covid-19. From selling vegetables online for the friend, they got to know that there is huge demand for safe and high-quality vegetables, as long as the price is below the supermarket. Of course, hydroponic farming does use fertilizer. They choose not to apply any pesticides. Strictly speaking their vegetables are not purely organic. The prices of pure organic vegetables are more expensive than theirs. However, their produce is sold at higher prices than those produced in traditional way. For example, their lettuce is sold at Rp 10k/kg, compared with Rp 18-20k/kg in supermarkets and Rp 3k/kg of lettuce applying pesticide.

Because of limited financial resources, they followed a step-by-step approach. By watching the instructions of YouTube videos, they built planting tables by themselves with cheaper materials than those in other farms. Lina's experience of selling vegetables online helped them to reach customers. Her relatives also helped to promote the produce among their networks. They also consult other famers on some technological details.

About three months ago, they started to operate the farm. Seeds were purchased online. They bought planting media from another farmer who offers a better price than stores because the farmer buys a large volume from suppliers. They mainly sell their vegetables using WhatsApp. In addition, one collector buys 5kg three times a week for each variety, in total 45 kg per week. Of course, they give the collector a discount. Just after the second harvest cycle, the business is already profitable. They estimated with this profit rate, they will earn more than as wage workers in the auto part company.

There are two other hydroponic vegetable farms in local areas. However, they are competitors as they produce different set of vegetables except for spinach, the most popular one. In addition, other two apply pesticide, while theirs does not, targeting more affluent urban customers.

Despite many setbacks in their lives, they are optimistic about their future. They have bought the materials and plan to build more planting tables to increase the production capacity. Andreas gives him a 9 out of 10 in risk score. His 4D is longer than 2D, confirming his subjective evaluation.

Challenges

One key challenge is disease. In one production cycle, half of the lettuce died of disease. For vegetable farming, weather is another big risk factor. This is why they would like to follow a step-by-step approach to avoid large failures.

'Disease and weather are key risk factors in vegetable farming.'

Entrepreneur 14: Ahmad Bastari, Vegetable Trader and Farmer, Dramaga, Bogor (Non-Pancer Tani)

Introduction

Ahmad Bastari is a vegetable trader and farmer in Dramaga, Bogor.

Background and the nature of business

After graduating from high school in 1985, Ahmad worked at Bayer, a Germany company, as a salesperson for two years. Then he quit the job and started selling sweet potato in a wet market following his grandfather's footstep. His grandfather had been doing the business in the same marketplace for many years. In the beginning, he was the only person, selling one ton of sweet potato per day. Now he employs five people for this business alone and the monthly sales are 50 tons.

He has four regular company customers. They wire the money to his company within one day after receiving the sweet potato. He has 60 suppliers. For those outside his village, they are paid in cash. For those within his village, the payment is delayed for four days. So far, he has not had any major dispute on quality, because his company's quality control team strictly sort and grade sweet potatoes according to standards.

There is only one competitor from his village. They often share price, market, and quality information. They do not share orders.

Using the savings accumulated from the trading business, he begun to buy farmland in 1994. As of now, he has 1.5 hectares of land. The major crops in his farm include sweet potato, Chinese cabbage, peanuts, and paddy. He has an online store selling his farm produces. He employs 20 workers. Each year, about 5-10 student interns from a nearby university work on his farm. He breeds most seeds on his farm and sell some of them to others. He also gets some high-quality

seeds from the agricultural extension center (BBP). In addition, BBP has provided him with tools, farming knowledge, and training.

He has two children. The son, pursuing a master's degree in forest product technology in a nearby university, is not interested in the family business. He complained that many young people do not want to work in the agricultural sector anymore. His daughter is in high school and is showing a strong interest in doing business. He plans to eventually turn over his third line of business related to sweet potato processing to his daughter. The major products include sweet potato flour and snacks.

Ahmad scores himself 9 out of 10 in risk taking. His 4D is longer than 2D, consistent with his subjective evaluation. In total, he has received 6 loans. He has almost paid off his last loan. The annual interest rate for the loan is 11% and the length is 3 to 5 years.

He regards education, skill, cleverness, and honesty as key ingredients for being a successful entrepreneur.

Covid-19 has not had any impact on his business.

Challenges

The major challenge facing his farm is water access. Sometimes, the distribution of water is unfair.

'Water access is a major challenge for the farm. Sometimes the distribution of water is unfair.'

Entrepreneur 15: Didih, Farmer and Agricultural Counselor, Bogor (Non-Pancer Tani)

Introduction

Didih is 50 years old. He has elementary education. He is a farmer and an agricultural counselor in Bogor.

Background and the nature of business

He is married with three children and two grandchildren. He worked as a filming crew for many years. He quit the job in 2010 for several reasons. First, the work had demanding hours, preventing him from spending more time with his family. Second, he did not see a future in this career.

At the time, he was actively involved in local community organizations in his village. He wanted to do something more meaningful, gaining respect of fellow villagers. Using his savings, he bought a 4,000 m^2 farmland in 2010 and started farming. Since he grew up on a farm, he knows farming well. His farm mainly produces paddy, nutmeg, and aglaonema. In addition, he raises 20 goats. At religious festivals, a goat can be sold at Rp 2.5 million. Nutmeg can be sold online. The rest is sold in temporal booths set up in festivals and events. However, in combination with the counselor income, he earns more than before. Moreover, his schedule is more flexible, allowing

him more time with his family. He feels more fulfilled for being able to help others. Overall, he is happier than before. His second son is interested in working on the family farm.

He is the first in the village to apply fertilizer in every three or four lines of paddy instead of every line. This helps greatly reduce the fertilization usage without comprising yield. His village is well known as a cluster of saddle production. Many business owners are also landowners. They pay more attention to the saddle business than farming. The incentive to adopt farming technology is low. He has tried to convince them of adopting farming technologies.

He is a rare example of someone who switched from a nonfarm job to farming. However, cropping income alone is not enough to support a family. He has generated income from multiple sources. His wife teaches at a religious school, bringing in additional income. He has utilized his strong social skills to cultivate a relationship with BPP (Balai Penyuluhan Pertanian/Agriculture Extension Center) and help other farmers. He reckons social skills, good relationship with spouse, and empathy (being able to understand others) are essential for the success of entrepreneurs.

He scores himself 9 out of 10 in subjective risk evaluation. His 4D is longer than 2D, indicating innate tendence for risk taking. Despite his strong risk preference uncovered by the subjective evaluation score and 2D:4D ratio, he has never taken any loans. He wants to sleep well.

Institutional support

'Keen on learning new farming technologies. Being an agricultural counselor has not only given me the opportunity to help others but also earn additional income.'

He is keen on learning new farming technologies and apply them to his farm. He sought advice from BPP for new farming technologies. Because of his aptitude in adopting new technologies and willingness to help others, he was chosen as an agricultural counselor by BPP in 2017. This job not only gives him an opportunity to help others, but also brings additional income. Wearing BPP uniform and giving farming advice to nearly a thousand farmers earns him respect in local communities. He has been selected as a leader of a few local community organizations.

Entrepreneur 16: Nanang Hermawan, Hydroponic Vegetable Farming and Driver, Cidahu, Sukabumi (Non-Pancer Tani)

Introduction

Nanang is 42 years old with elementary school education. He has a hydroponic vegetable farming business in Cidahu, Sukabumi. He also works as a car driver.

Background and the nature of business

He is married with five children. The older children have worked for small businesses in another city. The middle two children are still in school. The youngest one is only 20 months.

He has only 200 m^2 of land. Because of the limited land, he must look for other sources of nonfarm income. Since 2000, he has been a driver. Before the pandemic, he rented a car from his friend and worked as a driver using Uber-type ride app. However, his friend later sold the car. He had to abort the ride-hailing business. He would continue to do so if he can rent a car.

Without a car, he has been working as a driver for hire. On average, he is hired between 15 and 20 times per month. The daily pay is about Rp 200k. His driver income accounts for 80% of total income. The remaining comes from hydroponic vegetable farming.

He was inspired by a client, who runs a very successful hydroponic vegetable farm. He was impressed with hydroponic farming for its land-saving technologies and high profit. Although he wanted to start the business immediately, he needed to save money to set up the hydroponic farming. Soon, one friend in the village started up his hydroponic farming business. His older brother quickly followed the suit and set up another one. Their success further reinforced his business plan.

In February 2022, with his own savings of Rp 60 million, he finally started hydroponic vegetable farming on his very limited piece of land. He mainly plants bok choy, water spinach, and lettuce. He chose these vegetables because of the length of their production cycles. Bok choy and water spinach can be harvested within a month, while the growth cycle of lettuce is 45 days. The monthly output is 80kg. He sells 20 kg to supermarkets and 60kg to the traditional market. The price sold to supermarkets is much higher than that to the traditional market. For example, the lettuce sold to supermarkets is Rp 50k per kg, while it is only Rp 5k per kg if sold to the traditional market. For bok choy, the prices are Rp 12k and 3k per kg, respectively.

There is no agricultural kiosk in the village selling these seeds. He buys seeds from a nearby city when he happens to go there as a driver.

He learnt the technology of hydroponic farming through various sources- his client, his friend in the village, his brother, and the internet. He collaborates a lot with his friend and brother. They share tips on production and marketing. For example, they exchange ideas on how to use liquid garlic spray to manage pests. Hydroponic farming needs many nutrients. When certain nutrients run out of stock, they help each other by sharing inventory. They also share market orders. For instance, if a customer wants 40kg of bok choy at price Rp 12k per kg and he cannot meet the demand, he will buy some from his friend or brother at a price of 10k per kg.

His self-evaluated risk score is 8. His 4D is longer than 2D.

Challenges

There is no agricultural kiosk in the village selling these seeds. He buys seeds from a nearby city when he happens to go there as a driver.

The biggest challenge is how to sell more vegetables to the super market. Super markets want a more stable supply. However, the output of three hydroponic vegetable farms in the village

cannot meet the requirement. Actually, they were thinking about encouraging more farmers to switch to hydroponic vegetable production. But there is a fixed cost. Many farmers cannot afford to enter the business.

Entrepreneur 17: Herman, Horticultural Farmer, Cidahu, Sukabumi (Non-Pancer Tani)
Introduction

Herman (who let us call him Beharj) is 62 years old. He has only two years' of schooling. He is a horticultural farmer in Cidahu, Sukabumi.

Background and the nature of business

His parents were horticultural farmers. He worked for a state horticultural company in the area for 14 years. At the time, there were foreign experts from the Netherlands, Japan, and US. He learned tremendously from these international experts.

In the 1990s, he saw the potential of horticulture. He bought 1,000m^2 of land in the village at Rp 3 million, near the previous company, and started his horticultural farming. He sold a motorbike to finance the land purchase and did not apply for bank loans.

Over time, he has purchased more land. As of now, he has four hectares of his own land for horticulture, 5,000m^2 for paddy, and rents 5,000m^2 for horticulture. He employs 26-28 regular workers, and 40% of them are women. The daily wage for men and women is Rp 50-70k and 30k, respectively.

His five children all work on the farm. Each is assigned to manage one piece of land or be responsible for one task. The profit-sharing ratio is 50:50 between the father and children.

His farm produces seeds. They use cash to buy pesticides in another city about 2.5 hours away. His daughter runs another farm there. Normally, he asks his daughter to purchase the pesticides for him and brings them back when delivering flowers over there.

All the flowers are for the domestic market. He has 14 regular customers. They place orders by phone. They use bank transfers for payment, normally within one day. During the peak seasons, the demand for his flowers is high. However, he does not raise price. He prioritizes selling flowers to his regular customers. The weekly sales for flowers are about 6-7 Rp million. For the whole farm, total sales are Rp 25 million, and expenses are Rp 13-15 million. The net profit per month is about Rp 40 million (about $ 2,570).

Since he comes from outside the village, building a good relationship with the community is very important. He provided pipes for a local irrigation project and financial support for families who have lost loved ones. Every year, his farm hosts 4-6 student interns.

In addition, he tries to avoid showing off his wealth. During the pandemic, he bought a house in the nearby city, but he didn't tell fellow villagers.

He thinks good entrepreneurs have the following characteristics: strong will, resilience, attention to detail, good spirit to move on even after a setback, and strong motivation to help others and inspire more people to work in farming.

'Some important characteristics of a good entrepreneur-Strong will, resilience, attention to detail, good spirit to move on even after a setback, and strong motivation to help others and inspire more people to work in farming.'

In summary, his business idea stems from his previous working experience. He benefited from interactions with foreign experts in his previous jobs. The profit-sharing arrangement between his children and him works well for his family business. As an outsider, keeping good relationship with the local community and living a modest life (not causing jealousy) are critical.

He thought he is highly risk taking with a score 9 out of 10. His 4D is slightly longer than 2D.

Institutional support

In 2013, the government supported him to build three greenhouses.

Challenges

Natural disasters and market fluctuations are the two major challenges. Extreme weather, such as a small tornado, can blow away the greenhouses. Pests during rainy days are also a bothersome problem. When Covid-19 struck, many weddings and social events were cancelled. As a result, the demand for flowers from these events dropped sharply. He lost Rp 1.2 billion from Covid-19 restrictions. Even though he faced such financial difficulty, he didn't lay off any workers and still paid them wages. He was not stressed. He has a strong belief that things will get better. It is God's will.

'Natural disasters and market fluctuations are the two major challenges. Extreme weather, such as small tornado, can blow away the greenhouses. Pests during rainy days are a bothersome problem.'

Entrepreneur 18: Ninena, Roadside Store Selling Vegetables, Sukabumi, Bogor (Non-Pancer Tani)

Introduction

Ninena is 44 years old. She completed elementary school. She has a roadside store selling vegetables in Sukabumi, Bogor.

Background and the nature of business

She got married at age of 17 in 1994. Between 2007 and 2011, she sold vegetables in her own home. Her husband had experience of selling vegetables before marriage. The business was

paused from 2011 to 2019 when her husband worked in Saudi Arabia. After her husband returned home in 2019, they rented the roadside store using the Rp 10 million of husband's savings from migration.

More than 10 regular collectors deliver vegetables to her store. Most transactions are in cash, and a one-day delay in payment is allowed. The store hours are from 6am to 6pm. Her husband takes care of the morning shift, while she works in the afternoon.

Despite the strong competition among the sellers, they do share inventory. If she runs out of stock of a vegetable, she will go to another store to buy vegetable at a price slightly higher than the purchase price from collectors. For example, the price from the collector is Rp 5k, she will pay the other store Rp 6k and sell it in her store at Rp 10k. This happens about once a week.

She scored herself 7 out of 10 in the self-evaluated risk-taking measure. The 4D is slightly longer than 2D for her right hand but shows no difference for the left hand.

Challenges

A major challenge is declining income due to intense competition. Previously, there were only 3 sellers in this area. The daily sale exceeded Rp one million. Currently, the number has increased to 5, and daily sales has dropped to the range of Rp 500k-700k. She has not thought about strategies to cope with the declining sales.

'Intense competition has led to declining income'

Entrepreneur 19: Siti Hindun, Rice Milling and Paddy Farming, Parakan Village, Bogor (Non-Pancer Tani)

Introduction

Siti is 42 years old with junior high school education. She has a rice milling and paddy farming business in Parakan Village, Bogor.

Background and the nature of business

She has two children. The son is in a master's program in forest product technology. So far her son is not interested in the family business. Her daughter is in college, majoring in chemistry.

The milling business was started by the husband's mother using her savings. After she passed away, each of the three sons inherited a rice mill. After taking over the mill, they hardened the floor of the mill, increased the production capacity, and improved marketing skills. Theirs is the biggest one. Although the three mills are owned by three brothers, they still compete heavily in price. Recently, because of the fuel price increase, they negotiated to increase the service charge to 2k/kg at the same time. But in the end, only Siti's mill increased the price, while the other two did not. Despite the higher price, customers still come to their mill. Before the pandemic, the fee was 800/kg in 2019. Evidently, fuel price inflation has passed on to consumers.

Despite the competition in attracting customers, the three brothers collaborate in several ways. When the customer que is long, they will direct customers to the other two mills. However, the two brothers never refer their customers to them. When running out of fuel in one mill, they will fetch some fuel from one of the two other mills. They also share business information, such as cheaper fuel suppliers. They treat customers well and have effective communication with them.

The customers come as far as 60km away. There are too many to count. The mill processes 2 tons of paddy rice (1.5 tons of milled rice) per day. The price is Rp 2k per kg, including drying and milling. The price for just drying is Rp 1k per kg. The total revenues from milling amount to Rp 3,000k. Customers either pay cash or in-kind. During the rainy season, they send the paddy to a state agricultural agency for drying. In dry seasons, they dry the paddy on the ground under sun.

They sell husks to poultry farms, organic fertilizer producers, cow farmers, and goat farmers. He has 10 regular customers. They all pay cash. The price is Rp 5k per bag. Each ton of milled rice produces 20 bags. On average, the mill output 30 bags of husk per day as a byproduct. The total sales of husk per day are Rp 150k. Combining the milling and husk incomes, the total net monthly income is about Rp 5 million. She and her husband run the mill. In addition, they employ a helper.

Besides rice milling, she is actively engaged in contract farming. They own half hectare of land. This area is famous as a cluster of saddles and shoes. Many business owners are also farmers. Having more income from saddle/shoe production, many owners do not put much energy to manage their farm. In addition, urbanization has attracted many farm workers away from farming activities. So many business owners want to rent out their land. She saw the opportunity and started this business when she was only 18 years old before marriage. Initially, she rented in 5 hectares. After over two decades, the total area of rented land has increased to 1,000 hectares. She splits the farming profit evenly with landowners. She hires 4 regular workers to work on the paddy farm.

Her farm plants 5 varieties in 3 seasons. She is very careful in choosing new varieties. She follows a step-by-step approach to reduce risk. For a new variety, she normally sets up a demonstration field. She also consults experienced farmers. After seeing a success in the demonstration field, she gradually scales up the planting area of the variety. She mainly sells rice to the traditional market. Her daughter and her have also tried to sell 3kg and 5kg bags of rice online. But the volume is not big. The monthly income from farming is Rp 10 million.

Her milling business is vertically integrated with her paddy farming. Paddy from her own farm is a major source of supply for her own mills. In combination with the demand from regular customers, her mill sometimes runs over capacity. In such scenario, she just refers the customers to the other two mills.

Her daughter is interested in setting up a pet food store. They plan to build a store on their land right next to the mill. Both she and her daughter love cats. They have 2 cats. There are no pet food stores in this area. In addition, husks from rice mills can be used for making pet food.

Her self-reported risk score is 8 out of 10. For both her hands, the 4D is significantly longer than 2D.

Challenges

For her farming business, the biggest challenge is harvest failures due to weather or pests. One year, there was a major crop failure because of pests. She reported the pest problem to the local agricultural extension agency but did not receive any help. In the end, she figured out a simple solution, cutting the paddy plagued by pests and laying them on the ground for 3 weeks to kill the pests. The extension agency has now adopted her method.

'The biggest challenge is harvest failures due to weather or pests. One year, I reported the pest problem to the local agricultural extension agency but did not receive any help.'

Entrepreneur 20: Lia, Store Owner-Selling Vegetables/Fruits and Gasoline for Motorbikes, Parakan Village, Bogor (Non-Pancer Tani)

Introduction

Lia is 32 years old. She owns a store in Parakan Village, Bogor which sells vegetables/fruits and gasoline for motorbikes.

Background and the nature of business

Her father owns a few stores. He also has another line of business producing saddles in the cluster. She has been running the store owned by her father since 2014, even before marriage. Initially, it was set up as a convenience store, plus a gas station for motorbikes. Two months ago, she decided to sell vegetables and fruits. Because her husband is a vegetable/fruit collector, the profit margin for selling vegetables is high, about 40%. The daily sales are about Rp 700-800k. The gas station also generates some income. The ratio of income from the gas station and selling vegetable/fruit is 30:70.

She does not use a calculator. After finishing weighting all the purchased items one by one, she immediately tells the customer the amount of total payment. During the interview, she served two customers and pumped gasoline for two motorbikes. Female entrepreneurs are very good at multitasking.

There are 4-6 competitors in this area. All of them get suppliers from her husband. So they do not constitute as competition to her. When they run out of stock, they call her husband to refill the stock.

Besides working as a collector of farm produce, her husband is a farmer himself, cultivating 5 hectares of his father's land. He also provides pest management services for other farmers. As a collector, he has 40 farmers as regular suppliers. If the amount of supply is small, he pays cash. If the amount is large, he pays farmers back in a few days after selling the produce. The business

of collecting vegetables/fruits generates Rp. 500-700k per day. Putting the two lines of business together, the total daily income is Rp 1,671k. It is common to see multiple lines of business in rural areas. These businesses are often complementary.

Both Lia and her husband score 7 in self-evaluated risk measure. For the husband, the 4D is slightly longer than 2D. The 4D of Lia's life hand is significantly longer than 2D, while the two fingers have the same length for her right hand.

'It is common to see multiple lines of business in rural areas. These businesses are often complementary.'

Challenges

Probably because the business is highly profitable, on October 21, 2022, she was robbed during the prayer time when most men were going to the mosques. She lost Rp 4 million. She did not report the robbery to the police as it would have costed more to get the money back through that channel.

Another challenge of selling vegetables and fruits is that the unsold stock is perishable. Currently, they try to sell the leftover vegetables and fruits at a high discount by the end of day. Another planned solution is to raise 30 goats. The waste vegetables/fruits can be used to feed goats. The cost to buy a baby goat is Rp 1.2 million. An adult goat is sold at Rp 2.5 million. Since her husband also collects goats, he knows how to raise goats.

Entrepreneur 21: Rizal Fahreza, Horticulture Farmer And Distributor (Company name: EPTILO), Garut, West Java (Non-Pancer Tani)

Introduction

Rizal Fahreza is 31 years old and married with a 3-year daughter. He is a horticulture farmer and distributor in Garut, West Java.

Background and the nature of business

After receiving his Bachelor's in agriculture, he chose to go back to his own farm, unlike many of his classmates who preferred to work in multinationals or state companies. He was the president of student association in the faculty of agriculture in his university. The experience sharpened his leadership skills.

Five years ago, he started with 10 hectares of land, of which 4 hectares are self-owned and 6 hectares are rented. Now the farm size managed by the cooperative has increased to 100 hectares. For each hectare, 6 workers are needed. In total, the cooperative employs 600 workers, 60% of whom are women.

On the input side, his company provides farmers with high quality seeds and training. They also allow farmers to buy their own seeds. Because the farmers' outputs are aggregated, the company can sell fresh produce to large customers which are consistent in quality. They ensure on-time

delivery. After the products are sorted and graded, they are sold to different channels, including supermarkets, big clients (hotels and restaurants), traditional wet markets, online stores, and retail stores. The products of highest quality go to supermarkets. He has 7-10 regular customers.

He also plays an important role as an information intermediary for bank lending to farmers. It is too costly for banks to directly extend loans to farmers due to the small loan size and informational frictions. Since he works closely with farmers in his cooperative, he knows them well. When bank's process loan applications, they ask him for information about the applicants which helps farmers to get loans much easily than before.

Because of his successful business model and fluency in English, the president met him last week. He was invited to give a keynote speech in the largest Indonesia company. Three years ago, he was selected as an agricultural ambassador to the Association of Southeast Asian Nations (ASEAN). He gives himself 8 out of 10 in risk-taking measure. His both hands show a significant longer 4D compared to 2D. Despite challenges, he is confident that in the next five years, his business will grow much bigger. He wants to fulfill his dream to set an example for other young rural entrepreneurs.

He thinks entrepreneurs should have a good character, open-mindset (overseas experience), strong motivation, and charisma. It also is important to mitigate potential risks by thinking about the second and third options ahead of time.

Institutional support

As a college exchange student, he studied abroad for one and half-years in California at the University of California (UC) Davis, UC Riverside, UC Berkey, and Stanford University. This was an eye-opening experience. Beside taking classes in these universities, he visited many farms in California. During the weekends, he used to sit in the San Francisco port, watching incoming vessels. He would see flags of China, Thailand, and Vietnam, but no Indonesian flags. From that moment, he was determined to become the largest agricultural exporter in the world. His business model is to link farmers with customers by organizing them into a cooperative. He learned the business model from China where he visited Yunnan Province as part of a government program.

Challenges

The biggest challenge facing his business is lack of high-quality human resources. Because his business is growing so fast and the company is in rural areas, it is hard for him to find capable candidates for key positions.

'The biggest challenge facing his business is lack of high-quality human resources. Because his business is growing so fast and the company is in rural areas, it is hard for him to find capable candidates for key positions.'

5. Key Challenges and Lessons Learned

Based on the literature review and case studies, several key challenges and lessons emerge regarding youth entrepreneurship in agriculture in Indonesia. These policy, institutional, regulatory, technological, and individual challenges and related lessons learned are discussed below.

1) Policy and regulatory environment

The interventions under the YESS program, along with the National Medium-Term Development Plan for 2020-2024, and PWMP reflect the importance the government is placing on encouraging youth to realize their potential and undertake tradership opportunities. The creation of a National Strategy on Youth Entrepreneurship is an important step to harmonize and create a national level strategy focused solely on youth entrepreneurship in Indonesia.

While national level policies and programs exist which focus on youth empowerment and entrepreneurship, implementation challenges exist. Allocating support to programmes is weakened by budget constraints and lack of sufficient human and institutional capacity. Even though there are diverse geographical conditions, limited budget is set aside to support youth entrepreneurship at the regional and local levels. Since over twenty ministries/institutions are involved in creating an entrepreneurship ecosystem, there is a significant lack of coordination between the various ministries and institutions targeting youth entrepreneurship. Roles and responsibilities among stakeholders are not clearly defined and there is no effective accountability mechanism in place (UNDP and IsDB, 2022). There is a need to create a coherent and smoothly coordinated multistakeholder entrepreneurship ecosystem which includes the government, academia, private sector, farming community, value chain actors, donor community, and any other relevant stakeholders.

2) Institutional and intermediary environment

Lack of access to financial institutions can hinder business development and accumulation of capital. In Indonesia, access to financial institutions is uneven across regions. Availability of government credit facilities is better in the major provinces such as Java, Sumatera, and Bali, compared to eastern Indonesia. The case studies highlighted that entrepreneurs are hesitant to own debt. Additionally, the unavailability of credit in some situations as well as the high cost of available credit are both discouraging for businesses, especially those operating on a small scale. Entrepreneurs are grateful for the financial support received from institutions like BRI and YASI.

A few case studies highlighted receiving help from agriculture extension centers. But another case study indicated that they had approached an extension center regarding a pest issue but did not receive any help. It is important that at the local level, field level extension staff is equipped to share appropriate localized entrepreneurial options with youth, help them in getting credit access, improve connectivity to enable partnership with other enterprises as well as the market. Additionally, based on the literature, it is evident that there is a need for improving knowledge and skills of youth for employability. In the context of youth entrepreneurship this means that

relevant entrepreneurship education should be provided at the school, universities and vocational training institution levels. For youth who are not a part of formal educational institutions, NGOs, donors, and local government institutions should engage with them to provide entrepreneurial education.

3) Technology and business environment

Based on the case studies, it is evident that digital technologies are shaping entrepreneurial activities. Quite a few entrepreneurs interviewed indicated that they learned new technologies online. Some entrepreneurs are selling their produce though social media. YEs are in a better position to adopt digital technologies than their elderly counterparts. Entrepreneurs have learnt technology through training, engagement, and exposure. Several of them have expressed a desire to gain more technology related knowledge and skills. YASI has helped some of them in gaining technical know-how and marketing skills.

Available data shows that infrastructure development and internet related services are not evenly distributed across Indonesia. While increase in internet usage was recorded both in urban and rural areas in 2021, the usage in rural areas is much lower than urban areas. In 2020—2021, the cellular phone was the most preferred medium to access the internet (BPS, 2021).

Several case studies highlighted disease and pest as a key business challenge. A lack of training and information related to agronomic practices like pest and disease control, combined with constraints in access to credit, due to a lack of loan collateral, make it challenging for many small producers to scale their businesses (World Bank, 2021b).

4) Individual factors

The case studies highlighted that good character, honesty and integrity, open mindset (overseas experience), discipline and dedication to business, passion for the business, strong motivation, charisma and pleasing manners, a positive attitude, risk-taking ability, and business and networking skills all contributed to their success. One of the case studies also highlighted that the secret to success is through partnership with other people who have complementary skills and risk preferences.

Some of the most successful entrepreneurs interviewed have college degrees. It is clear that access to high quality training and exposure is key. But in reality there is unequal access to training due to locations, high fees, and limited awareness. There are also differences in the quality of training received from the government versus the private sector or from abroad. Several entrepreneurs have highlighted the need for skills training and technical support.

6. Recommendations for Stakeholders

1) For Policy Makers

A multistakeholder entrepreneurship ecosystem should be created at both the national and local levels. Aside from sharing knowledge, providing market access streams, and addressing existing business challenges, the platform should also provide capacity building for farmers and entrepreneurs to learn and deploy technology innovations.

The government should strengthen the extension system by connecting it with relevant academic and research institutions across the country so that extension agents can get access to most up to date technology innovation related knowledge to share with entrepreneurs. Digital modes of providing extension should be encouraged wherever useful. The central level government should closely engage and improve the coordination of public extension with private sector and NGO extension services (IFPRI et al, 2019).

Since several YEs raised the issue of weather and climate related challenges and disease and pest problems adversely impacting their business, the government needs to invest resources to encourage climate smart agriculture practices, conduct research to develop climate resilient seeds, and support entrepreneurs in building greenhouses which are operational during bad weather conditions. Pest and disease management trainings are also essential given the high incidence.

Digital technologies are shaping entrepreneurial activities. The adoption of digital technologies is essential but its adoption in the agriculture sector varies significantly across the country. Policy actions including those focused on incentivizing private sector can help accelerate the countrywide adoption of digital technologies in agriculture. This has to be complemented with infrastructure investments to address constraints faced by farmers including access to water and land roads, inputs, energy, post-harvest storage, and logistical support (Kharas et al, 2022).

Access to low-cost credit continues to be a key challenge. BRI and YASI have helped several entrepreneurs by providing the access to grants and loans through making connection to micro finance institutions. It is essential to make the formal credit institutions route easily accessible at a low cost to entrepreneurs operating in rural areas. Aside from expanding the reach of public financial institutions, government should also encourage institutions such as YASI to support their endeavor by providing them financial support and connecting them to local extension and public credit institutions for network building and collaboration.

2) For NGOs and Development Organizations

SFSAs Pancer Tani program exemplifies the role NGOs can play in supporting youth through capacity building, network creation, knowledge sharing as well as financial and other forms of support. The Pancer Tani entrepreneurs in the case studies highlighted that the support received through YASI was particularly helpful. Programs like Pancer Tani should be expanded across the country with the aim to create location specific solutions for entrepreneurs.

Given that there are varying challenges facing each business, it would be very difficult to design an intervention that works everywhere and all the time. Thus, donors should keep a humble

attitude when designing a program. YASI has adopted a more tailored approach, empowering field officers to identify potential YE, help them diagnose the bottlenecks, and figure out indigenous solutions. Having shown the importance of demonstration effect, one potential area for further intervention is to promote learnings within social networks. A successful business model itself serves as a strong demonstration to other members of the community, inspiring potential young entrepreneurs. There are some ways to promote the successful stories. For example, banners can be erected outside the business premises, signaling the prestige of being selected in a program. Donors or the government can help sponsor internship programs, encouraging successful business to host interns from nearby universities or high schools. The success stories can be also made into videos and posted online. The core idea is to identify the success stories and help spread the best practices from one point to a wider area, reaching more potential young entrepreneurs in rural areas.

The YESS Program collaboration of IFAD with the Indonesian government is particularly important from the perspective of its intended outcomes, scale, and scope. Such collaborations between the government and international donor community with well-defined program pathways and goals should be encouraged.

3) For Entrepreneurs/Businesses

Mindset and skills matter for successful entrepreneurship. One's mindset can be shaped by personal experiences and educational backgrounds. Two of the most successful entrepreneurs interviewed have college degrees. One of them attended a prestigious internship program organized by a Japanese company. Another was an exchange student in the US for one and half year. In addition, he visited Yunnan Province of China to learn about the experience of agricultural cooperative. As a result, they have a broader perspective than many others and are in a better position to identify key business opportunities. The technical and soft skills trainings received by the entrepreneurs such as those provided by YASI have proven to be extremely useful.

Despite the importance of risk taking in entrepreneurship, one does not need to be risk loving to be a successful entrepreneur. Most of the entrepreneurs interviewed show a tendency of risk taking. Some of them are in fact risk averse. Having realized their tendency to be over conservative, they work with other partners, who may be more risk taking, to set up joint ventures.

Receiving mentoring and enhancing knowledge and skills on an ongoing basis are essential for the growth of YEs. Partnership with other people who have complementary skills and risk preferences and can also provide financial support, should be pursued. Successful YEs should consider mentoring other people in the community by sharing their success story and also providing support. For exposure, mentored youth can be offered internship and employment opportunities in the businesses of successful entrepreneurs.

7. Concluding Remarks

Indonesia is one of the most populous countries in the world with a high share of youth population. This report analyzes the policy, institutional, technological, and individual capacity

for youth development in the country, specifically looking at youth entrepreneurship in the agriculture sector. The report includes several cases studies of agribusiness entrepreneurs highlighting the sources of support received by them and the challenges they experienced in the entrepreneurial journey. The key insights drawn from the literature review and case studies were used to highlight gaps in the current entrepreneurship ecosystem in the country. Recommendations are included in the report for policy makers, NGOs and development organizations, and YEs to strengthen the entrepreneurship ecosystem in a way that empowers the existing entrepreneurs and creates future opportunities for youth in the agriculture sector.

The analysis highlighted that entrepreneurs have received technical, financial, resource based, and networking support through various sources including the government, NGOs, private sector, family, and community members. But entrepreneurs are facing various challenges which are undermining the size and sustainability of their businesses. Lack of access to low-cost credit, managing seasonality and the impact of weather related adverse shocks, market connectivity, access to key inputs, and lack of knowledge and technical skill support are some of the key concerns. However, the challenges vary across contexts. Local level support tailed to the needs of entrepreneurs would be extremely helpful.

Broader insights can be drawn for developing countries like Indonesia which are fast growing with a significant youth population. Rural people are highly enterprising. They do their best to make use of their strengths, such as personal working experience and social networks, to overcome the imperfect institutional environment and lack of resources. They do learn from each other. Many of the businesses are cluster based. Promoting cluster-based models can help facilitate mutual learning and create entrepreneurship ecosystem, thus reducing the technological and capital entry barriers (Zhang, 2022). It is important to put local leaders and elites on the drivers' seat, who are in better position to identify bottlenecks and figure out indigenous local solutions.

Some of the challenges facing young entrepreneurs are beyond the control of individuals, such as weather fluctuation and pest problems. Some national policies are called for.

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Appendix : Images of entrepreneurs


JUAL BELI
SAYURAN
JUAL BELI
SAYURAN


Pancer tani
TUMBUH BERSAMA DAN BERKELANJUTAN
Yayasan
Agri
Sustineri
Indonesia
Bapak Purnomo
Menyediakan :
Semaian Benih Unggul, Pupuk Kompos
085211563203
Bermitra dengan:
Kopdit Mekar Sai
syngenta foundation
for sustainable
agriculture


Pancer tani
Yayasan Agri Sustineri Indonesia
Torong Makmur
Menyediakan :
Benih, Pupuk, Pestisida
089681556760
Bermitra dengan:
syngenta foundation for sustainable agriculture