



PRISMA



Climate Smart Agriculture Case Study

Growing Resilience and Productivity through Climate-Smart Maize Varieties in Dry Climates

PRISMA is a partnership between the Indonesian Government (Bappenas) and the Australian Government (Department of Foreign Affairs and Trade) to boost the incomes of smallholder farmers by increasing farm productivity. PRISMA works with private sector partners to develop commercially viable business models to increase the distribution of technologies, services, and products that improve productivity. The majority of PRISMA's partnerships have climate-smart agriculture elements. Climate-smart agriculture aims to increase agricultural productivity while ensuring farmers' resilience to climate change and reducing the agriculture sector's environmental footprint. This case study draws from PRISMA's experience to demonstrate how the private sector supports farmers adapting to climate change.

Introduction

Climate change is impacting farmers in East Nusa Tenggara's already dry climate. Most farmers rely on rainfed agriculture, making them particularly susceptible to fluctuations in rainfall. BMKG and local authorities emphasise the need for community adaptation and mitigation efforts.

Maize is an important local and staple crop for consumption and livestock feed. Most farmers plant maize once a year using local varieties with low productivity (around 1 ton/Ha). This results in insufficient stock for year-round needs, which pushes farmers to purchase maize in the lean season. Maize prices can double or even triple during these times.

The cereal research centre of the Ministry of Agriculture (MoA) has released high-yielding open-pollinated maize varieties (OPV)—for example, Lamuru and Jakarin—that are adaptive to dry climates. If adopted widely, these varieties could significantly improve the productivity and resilience of farmers in the region.

In collaboration with regional-level agencies, the Ministry of Agriculture (MoA) has introduced these high-yielding open-pollinated maize varieties (OPV)—such as Lamuru and Jakarin—to benefit farmers through various subsidy programs. However, a significant hurdle emerges as the seed loses its high-yielding characteristics when retained and replanted. This necessitates

regular renewal with certified seeds, posing a challenge to the widespread adoption of these varieties.

While farmers know the benefits of the high-yielding open-pollinated varieties, since the seeds are only available through government subsidy programs, they can only wait for the next program allocation to get renewed seeds. The subsidy program allocation varies every year and can only cover a limited number of farmers.



Bridging supply gaps and expanding markets

Local seed producers in NTT have been supplying Lamuru seeds to government subsidy programs for many years. These micro and small enterprises started their business by joining the provincial government's nursery development program. Over time, some of them became independent and continued their businesses. However, the subsidies' budget allocation varies, resulting in inconsistent orders.

PRISMA has encouraged local seed producers to sell their

certified seed products in the commercial market. It has helped them develop a product brand, design packaging and promotional materials, and build a distribution network. As a result, the commercial market for OPV maize seed is growing. Farmers in NTT prefer OPV seeds due to their more affordable price. When cash is tight, they can still use retained seeds for one or two seasons, though they gradually lose their superior quality.

As farmers become more aware of the commercial availability of the Lamuru variety, the demand for it also grows. However, the supply of this seed is insufficient to meet the demand. Seed producers cannot keep up with the demand. This is because the availability of the parent seed is inconsistent because parent seed production only considers the need for government subsidy programs. As a result, local seed producers sometimes miss a whole year of production due to the unavailability of the parent seed.

A whole-market approach is needed

PRISMA facilitated a discussion between local seed producers and related stakeholders at the provincial and national levels (i.e. the provincial technical unit for parent seed production and certification (UPTD Perbenihan and UPTD PSB NTT), the national standardisation agency for agricultural instruments for cereal seeds (BPSIP Maros).¹

The discussion focused on the need for a well-coordinated production plan of OPV parent seed between public and private actors to anticipate the long-term growth of the OPV commercial seed market. PRISMA designed the meeting concept and developed planning

tools for easier stakeholder coordination. PRISMA also encouraged several seed producers with licenses to produce parent seeds for other seed producers to increase availability and ensure continuity of OPV seed production.

As of the last rainy season in 2023, four seed producers (CV Tiga Putri Mandiri, CV Dala Agro Diankris, CV Tani Jaya Sehati, CV Karya Tani Sehati) are selling OPV seed to the commercial market. They have also started introducing Jakarin—a newly released OPV variety that is also adaptive for dry climates and has a higher potential yield—to the commercial market.



¹ Unit Pelaksana Teknis Daerah (UPTD) Perbenihan dan Unit Pelaksana Teknis Daerah (UPTD) Pengawasan dan Sertifikasi Benih (PSB) merupakan bagian dari Dinas Pertanian dan Ketahanan Pangan Provinsi NTT. Balai Pengujian Standar Instrumen Tanaman Sereal (BPSIP) Maros merupakan bagian dari Kementerian Pertanian.

Signs of change

Smallholder farmers are increasing their maize productivity due to increased access to OPV seed. For farm households that consume maize as a staple, this enables them to improve their household inventory until the next harvest. More commercial farmers are increasing their income from selling maize harvests. Over

the last 10 years, more than 28 thousands farm households have benefited with a total (monetised) value of around 47 billion IDR. PRISMA is conducting a study to see the impact of Lamuru seed from the commercial market on farmers' food security and economic advancements.

To increase the supply of OPV seeds, continued collaboration between local seed producers and related stakeholders at the provincial and national levels is needed.



Since I used the Lamuru variety, I have been very satisfied. The maize also lasts a long time to store. It must be completely dry if you dry it in the sun. So, the food supply is sufficient until the next harvest. The rest is sold. The money can be used to buy eggs, fish and vegetables.

Ibu Ermelinda, Belu



About PRISMA

PRISMA is a partnership between the Government of Indonesia and the Government of Australia to increase the productivity and income of smallholder farmers. Increased productivity contributes to food security and builds farmer resilience to market and agricultural shocks, including climate change.

PRISMA is supported by the Governments of Australia and Indonesia and implemented by Palladium, with Technical Assistance from Swisscontact, Zurich.

Find out more:

www.aip-prisma.or.id // info@aip-prisma.or.id //  PRISMA