FARMERS’ FIELDS BECOME CLASSROOMS

On-site research is helping a rice specialist better understand how rice growers can increase production potential and, with that, Indonesia’s goal of food security.

Key points:
- Maintaining food security places rice productivity high in the Indonesian Government’s development goals.
- ACIAR makes it possible for the International Rice Research Institute (IRRI) to work with four rice-growing Sulawesi villages.
- Major crop constraints being addressed include limited water, stem borers, weeds, rodents and difficulty managing fertilisers.

BY REBECCA THYER

It may be a 4-hour drive from Makassar in Indonesia’s South Sulawesi to the rice fields where rice researcher Dr Donna Casimero is running on-farm trials, but it’s a much easier commute than the one she would have faced had she stayed at the Philippines-based International Rice Research Institute (IRRI), which employs her.

PARTNER COUNTRY
Indonesia

PROJECT: SMAR/2007/216: Improving rice productivity in South and South-East Sulawesi
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Dr Casimero is part of an IRRI-led project to improve rice productivity in South and South-East Sulawesi. In a first for ACIAR-funded work, operating under the Australia Indonesia Partnership’s Smallholder Agribusiness Development Initiative, Dr Casimero has moved countries for the duration of the 3-year project. She operates from an office at the Assessment Institute for Agricultural Technologies, a project partner. Being comparatively close to her trials enables her to better understand the complex challenges faced by farmers in the field.

“Being in Makassar I can get a personal feel for what is happening and what the farmers are going through,” says Dr Casimero, who grew up on a rice farm in the Philippines.

This social interaction is proving important. Although intensive crop-management technologies exist, farmer uptake is limited. The project team hopes to change this by working with farmers in their fields to document their experiences with a view to developing a ‘technology adoption’ model that could also help rice farmers in other parts of Indonesia.

Working in four villages across South Sulawesi and South-East Sulawesi, Dr Casimero is undertaking ‘participatory adaptive research’. This involves farmers directly in project planning; a first for the villagers and something they are keen to continue. “We are working with farmers to find the most appropriate rice production technologies based on the actual problems they have in their fields.”

For this to work, a better understanding of farmers’ needs was required, so the project’s first year was used to assess production constraints.

It was found that in Ujung Tanah and Awolagading, in South Sulawesi’s Bone District, the major constraints included limited water, problems with stem borers, weeds and rodents, and difficulty in effectively managing fertilisers.

At Karandu and Bendewuta, in South-East Sulawesi’s Konawe District, rodents were the major problem, followed by stem borers and weeds. Nutrient management was also an issue because of the increasing input costs and soil fertility problems associated with too much water at certain times of the year, particularly in Bendewuta.

Dr Casimero says all four villages she is working in face similar problems but differ in which problem is the priority. “The farmers are confronted with the same issues in the field, but how they impact on production is different. “For example, in South Sulawesi our main focus is how to help farmers use water more efficiently. So the question is, what are the technologies we have that we can test in the field and make water savings without yield penalties?”

In Bone, the team has tested alternately wetting and drying the rice crop instead of continuous flooding. Using simple water tubes, farmers monitored water levels in the root zone and then decided when to irrigate. Water use in the 2008–09 dry season dropped by 15%, yet yields were maintained. For the two villages in South-East Sulawesi work to improve rodent problems has included teaching farmers about the pest’s biology, breeding history and management options. Rats can wipe out an entire crop, says project leader Dr Grant Singleton, a rodent ecologist based in the Philippines at IRRI. “Until pests are managed farmers cannot worry about fertilisers or other inputs.”

He says teaching farmers about rats’ breeding cycles has proved humorous and informative. “When the seed starts to form, or boot, the rats start to breed. Or, as a farmer said to the group, “the rats start booting too”. It got a laugh, but it meant we came up with a simple message: rats needed to be managed before they and a crop reach the booting stage.”

As well as the challenges farmers face in getting a rice crop to harvest, the team is also addressing postharvest technology. “Often a lot
of effort goes into production, but farmers can lose up to 20% of a crop by not drying it well. If they could dry it and store it—instead of selling it to a middle man while still in the field—they could get a higher price,” Dr Singleton says.

One of the more consistent problems faced by farmers is that of economics. “This is true not just of Indonesia but also many developing countries,” Dr Casimer says. Economics can affect technology adoption and also the project team’s direction.

For example, in one of the project’s villages—Bendewuta—farmers can afford to be more progressive because they own their land and have larger farms. “For them, it is often a matter of providing the right information and the right technology.”

Yet, in South Sulawesi’s Arowlagading and Ujung Tanah villages and South-East Sulawesi’s Karandu, most farmers are tenants, or their farms are very small. “Farmers’ ability to access technologies, such as good seed or fertiliser, is low as they have limited financial resources,” Dr Casimer says. It can often mean farmers have less time to work on their own farms as other jobs are needed to supplement farm incomes.

Dr Singleton says this is one of the reasons why the project is examining labour-saving technologies. Time demands mean growers often broadcast rice seed instead of planting seedlings. “Planting seedlings is better than broadcasting because less seed is used, and planting in rows allows better weed management.”

Because of this, the project is trialling and promoting a drum seeder. “It is basically a plastic drum that releases seed in rows. It is pulled by the farmer and is quicker than planting seedlings, but gives even planting,” he says.

Dr Casimer says time is very important to farmers. “These farmers are not only rice farmers. They plant other crops and have other activities to augment their income, so it is important that we try to save on labour.”

Following record-high import levels, rice productivity has become an important Indonesian Government goal. In 2007 the country was the world’s second-highest rice importer. Consequently, the Indonesian Government has a goal of rice self-sufficiency and aims to do this by boosting rice productivity by 5% from 2008 to 2010. For South and South-East Sulawesi meeting this goal means improving productivity by 10%.

South Sulawesi is Indonesia’s fourth-largest rice-growing province. Yet its average rice yields, and that of South-East Sulawesi, are 2–3 tonnes a hectare, well below the national average of 4.6 t/ha.

For Donna Casimero, there is no better place to improve productivity, understand growers’ needs and examine how new technologies might help than in the field. “I am a farmer’s daughter—I have the ‘feel’ for this work. My father is still an active, progressive rice farmer in the Philippines. And being here makes me work more effectively with the farmers.”

Learning the local language means she is able to communicate and build trust and rapport with local farmers. “Once you have built up trust, it is like half the work is done,” she says. However, she is finding the learning process goes both ways. “If I am struggling with the language, the farmers correct me. They are also my teachers and treat me like someone who belongs.”

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– DONNA CASIMERO