PLANT TISSUE CULTURE

POTATOES FIND NEW ROLE IN RICE BOWL

HO CHI MINH CITY, Vietnam—It's a common cry in Southeast Asia—"We don't have enough rice." In Vietnam, at least some of this deficit is being met by a new food crop—potatoes. According to Nguyen Van

Uyen, a research fellow at this city's Institute for Experimental Biology, potatoes are taking their place in Vietnam: they are already intercropped with rice on 100,000 hectares nationwide. And Vietnamese potato farmers are turning to the test tube to improve their crops, boost production, and increase income.

With technical assistance from the Institute, 10 farmers in Dalat have set up home tissue-culture laboratories to produce disease-free plants. This project started in 1982 with tissue-cultured cultivars imported from Peru's International Centre for the Potato (CIP). The home laboratories consist of about 200 growing flasks, an ultraviolet light, wooden boxes for growing the tissue to seedling size, and a reactor (made from gas tanks left by the Americans) for producing the tissue culture growth medium. A family requires the equivalent of \$US 100 to set up its own home lab.

Initially, farmers put the plants into a growth medium containing coconut water as a source of nutrients. A month later, they transfer the

plantlets to a semi-sterile soil bed. There, the growing plants are topped once a week to provide material for field-planting. Using this method, a family can produce up to half-a-million plants annually. "It's a very lucrative private business," says Van Uyen. "They make a big profit from this."

So far, 10 families have gone over to the tissue culture system. In one year, they were able to produce enough plantlets of the new CIP potato varieties to fill 1,000 hectares. And production almost doubled—from the usual 10 tons per hectare to 18 using the CIP potatoes.

The new varieties are resistant to many viruses that usually plague potatoes and have also cut farmers' spraying costs dramatically. "Formerly, the farmer had to spray every day, even if it rained," says Nguyen. "Now they may not have to spray all season. It is formidable."

The Vietnamese maintain an *in vitro* collection of 70 potato varieties. They also use plant tissue culture to propagate coffee, orchids, and sugarcane.

—Mark Timm

Biotechnology for small industry in practice: a Vietnamese family produces superior potatoes via home-based tissue culture techniques.

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