

5. RICE MUTANT VARIETIES FOR SALINE LAND (VIE/5/014) D2 New

MODEL PROJECT

CORE FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US \$	US \$	US \$	m/d	US \$	m/d	US \$	US \$	US \$	US \$	US \$
1999	1/0	14,700	0	20,000	4/0	13,800	0/14	5,040	0	15,000	0	68,540
2000	0/14	7,210	0	20,000	4/0	14,400	0/28	10,640	0	15,000	0	67,250
2001	0/14	7,560	0	25,000	0/0	0	0/14	5,600	0	0	0	38,160

FOOTNOTE a/ FINANCING

YEAR	Experts		Group Activity	Equipment	Fellowships		Scientific Visits		Group Training	Sub-Contracts	Misc. Comp.	TOTAL
	m/d	US \$	US \$	US \$	m/d	US \$	m/d	US \$	US \$	US \$	US \$	US \$
1999	0/0	0	0	30,000	0/0	0	0/0	0	0	0	0	30,000
2000	0/0	0	0	25,000	0/0	0	0/0	0	0	0	0	25,000

First Year Approved: 1999

OBJECTIVES: To further develop and extend advanced mutant varieties and mutant germplasm of rice in Viet Nam.

BACKGROUND: The Agriculture and Genetics Institute (AGI) in Hanoi and Cuu Long Delta Rice Research Institute (CLRRI) in Omon, Cantho in the south have released many improved varieties of food crops, including rice, maize and soybean. Some of these new varieties are cultivated in large areas, and other new varieties/germplasm lines or hybrids are undergoing regional testing. The institutes have maintained close collaboration with other institutions in the country as well as some in France, Belgium and the Philippines. Agricultural production in Viet Nam earns more than 40% of the national income and agricultural development is thus a top national priority. Although productivity is high under irrigation and with high agricultural inputs, the production of food is low in coastal areas, inhabited mainly by resource poor farmers. Abiotic stress factors such as saline or acid sulphate soils are major limitations to food production. Viet Nam has a coastline of 2,000 km, and sea water can intrude 50 to 70 km inland during the dry season, contributing to salinization of rice producing areas. The extension of improved higher yielding mutant varieties which are tolerant to abiotic stress factors such as saline or acid sulphate soils and can be grown in marginal areas under rain fed conditions would be beneficial to these poor farmers, and in line with the Government policy of "eliminate famine, alleviate poverty". The objective of the project is the rapid extension of three rice mutant breeding lines to saline and acid sulphate soils in coastal areas for production under rain fed conditions. 1) TNDB-100 (released as a national variety in 1997), which has been developed at CLRRI by radiation induced mutation from the local variety Tai Nguyen, has good tolerance to a wide range of acid sulphate soils, is higher yielding, more resistant to pests and diseases, much earlier maturing and has improved grain quality. Growing this mutant variety allows the farmers in the coastal area to harvest two-three crops per season instead of one crop of the traditional variety. As a result of good yield performance, multiplication and distribution of seed to various provinces, and extension training in the coastal area of the Mekong Delta, more than 40,000 ha in 15 provinces in the south are covered by TNDB-100. The good grain quality allows its use for export. 2) THDB (approved for national testing in 1997), was developed at CLRRI through mutation techniques from the local deep water rice variety Tep Hanh with good tolerance to acid sulphate and saline soils and very good cooking quality. The mutant is photoperiod insensitive, early maturing, higher yielding, lodging resistant and maintains cooking quality. Compared to one crop only of the local variety, two-three crops of the mutant can be grown per year under the rain fed conditions of the coastal area in the south. At present 6,700 ha are covered by THDB. 3) CM1 has been developed by irradiating the local variety Chiem Bau at AGI, is tolerant to saline soil like the parent, but higher yielding and earlier maturing, is adapted to the coastal areas in the north and is being grown on 160 ha in 1998. This mutant line is for local consumption only.

PROJECT PLAN: The specific tasks envisaged under the project are to accelerate the extension of TNDB-100 in the south of Viet Nam, to accelerate the extension THDB in deepwater regions in the south and release it as a national variety, to enlarge the area under CM1 to 12,000 ha by 2001 and release it as a national variety, to optimize production systems for the new mutants, to advise farmers on improved cultivation techniques, to organize demonstration plots and workshops to teach extension staff and farmers, and to develop new breeding lines of rice through induced mutation and cross-breeding with mutants, with special emphasis on cooking quality in order to increase the production of export quality rice in different environments. The target is to generate enough CM1 seeds for the cultivation of over 160 ha in 1998, 600 ha in 2000 and 12,000 ha in 2001, and TNDB-100 and THDB for more than 100,000 ha by 2001. Other elements of the strategy are to increase yields of mutants through optimized production systems; to use the best mutant lines as sources for cross-breeding; and to identify useful new mutants in preliminary evaluation trials.

NATIONAL COMMITMENT: A large number of scientists and technicians at AGI and CLRRI; laboratory facilities and experimental fields; resources for national workshops and extension of the new varieties, including seed propagation programmes.

AGENCY INPUT: Expert services and training in cytogenetics and mutation breeding, small items of equipment and chemicals.

PROJECT IMPACT: As farmers grow the new varieties with higher yields and better quality, they will continue propagating and using the seeds, generating higher income. The project will contribute to increasing food production in the difficult natural conditions of marginal areas, and thereby to the elimination of famine and alleviation of poverty among rural people. Poor farmers in the coastal area will be among the direct beneficiaries. As the economy relies heavily on rice export (in 1997 Viet Nam was the second largest rice exporting country in the world), increasing rice productivity will increase the country's foreign income.