Rice is a stable food for one haft of the world population. Especially, Thai people consume rice as the main food. Thus, rice is planted throughout the country. The production of Thai rice is about 30 million tons a year. A haft of them are domestic consumed and another is exported. Thailand is the leader of rice exporter in the world. However, the rice yield per unit area of Thailand is the lowest among the main rice exporters!

The topics of our researches are concerned on the improvement for biotic and abiotic resistance in high premium cooking quality rice (KDML105 and RD6) and improvement of yield potential of rainfed and irrigated rice varieties using “breaking the yield frontier of rice” strategies (new plant type improvement and hybrid rice technology). The combination between conventional breeding and biotechnology (tissue culture and molecular biology) are applied for our breeding methodology. Moreover, wild relative rice species the germplasm source for the improvement of some importance characteristics in rice breeding programs.

**Breaking the yield frontier of rice**

**New plant type improvement**
Increasing of photosynthetic efficiency and sink size as possible approaches to increase yield potential in rice.

**Hybrid rice technology**
Using the cytoplasmic-genetic male sterility (CGMS) and environmental-sensitive genetic male sterility (PGMS/ TGMS) are focused to develop high yield potential of the F1 hybrids.

**Molecular breeding**
Quantitative trait loci or bulk segregant analysis are used to identify markers linked to target traits. The markers are used for assisting selection in our breeding programs. The double haploid lines are also included in some breeding programs.

**QTL/ BSA analysis**
Quantitative trait loci or bulk segregant analysis are used to identify markers linked to target traits. The markers are used for assisting selection in our breeding programs. The double haploid lines are also included in some breeding programs.

**Publications**