

Rice Biodiversity

by

Teo GK

**Senior Research Officer
ARC Semongok
Department of Agriculture**

Sarawak is a state rich in rice biodiversity. What is biodiversity? In short, biodiversity simply means "variety of life". Life comes in an almost infinite variety of fascinating and enchanting forms. Without diversity, life is not conceivable. The term biodiversity was coined about fifteen years ago. Today it is a household word and a focus of concern for the general public.

Man is the dominant species of this planet. We are the only species who have the ability to investigate the great richness and complexity of our biosphere. Therefore, we are able to choose and decide on how to treat, exploit and sustain our biosphere. However, it is our responsibility to treat it with respect. Ecologists, environmental and evolutionary scientists know about the importance of biodiversity and the need to maintain a balance for a long time. Because of this, almost every nation in the world has an environmental programme today.

Because of its harsh natural terrain, Sarawak has been spared the new seed and fertilizer technology called the 'green revolution' in the 70s. This is probably due to the 'small pocket' size paddies and that rice has always been regarded as a subsistent crop. Furthermore, fertilizers and seeds are difficult to transport into the paddy fields which were then not easily accessible by roads.

Rice fields in Sarawak are very enchanting and diverse. Rich ecosystems of rice paddies exist there all over the state. In the hills and valleys, fragile and stable rice environments coexist. Generally the fields are not leveled and not irrigated, most of rice schemes are drainage schemes and only a few double cropping rice schemes exist. Rice fields are prone to floods, droughts and soil constraints. Due to these problems farmers plant a single crop of paddy per season. Their choice of crop is usually their own traditional variety that has been proven to adapt

well to uncertainties of the environment.

Perhaps the simplest distinction between the rice economy of Sarawak and that of Peninsula Malaysia and Sabah is the dominance of subsistence-cropped and low-yielding hill paddy over wet paddy.

Upland or dryland rice is planted in fields with naturally well drained soils and no surface water accumulation . This type of rice also includes hill paddy and it supports the majority of the rural communities, most of them at the subsistence level. Hill paddy or slash and burn shifting cultivation remains important for the majority of rural village communities living in the interior as a means of securing their staple food. Here, rice is direct seeded in non flooded, well drained soil or on level to steeply sloping hills. In Sarawak farmers build bunds or levees around the farms to capture water. This is referred to as rainfed lowland rice as it depends on the rain to flood their fields. Rainfed lowland rice is transplanted on level to slightly sloping banded fields with variable depth and duration of flooding depending on rainfall.

These diverse environments support many old traditional rice varieties that are permanently lost or extinct in most of our Asian countries. Genetic diversity is important to individual farmers and the farming communities and to agriculture in general. Rice diversity is crucial because breeders are still striving to develop the ultimate rice variety that possesses all the traits for high yield, grain quality and resistance to pests and diseases. In the event that breeders and scientist could produce a 'miracle rice' that was perfect in every way, this 'miracle rice' would no longer be a miracle rice because pests and disease would evolve new strains of virulence to attack our perfect 'miracle rice'. Furthermore our environment is always changing and there will be alterations in rainfall, temperatures and global warming. Therefore, our 'miracle rice' bred for the present environment would not be the best rice in the case of future environment. Besides that, agricultural technologies and agronomic practices will improve and government policies will change the ways how farmers farm. On top of all these issues, consumers' preferences for flavour, taste and texture will also change. Thus, we know that any 'miracle rice' produced today will not be a permanent miracle.

Our traditional farmers in Sarawak know the value of maintaining a high genetic diversity in fields. They know that planting a few varieties of rice in the field suffers less crop damage due to pests and disease. This practice by our traditional farmers have helped conserve the genetic diversity that is permanently lost in many rice growing Asian countries. We are indeed blessed with a myriad of rice varieties in the market. There are exciting varieties of different grain sizes, shapes and colours. Currently, farmers grow more than 100 varieties of rice and many of these are sold in the market throughout Sarawak. These varieties are sold as high quality rice and they cost between RM 2.80-9.50 per kg.

Sarawak is rich in biodiversity of cultivated traditional rice varieties. Sarawak's strength lies in her biodiversity that adds value to her land and environment.