

Masipag News and Views

Grassroots Breeding of Masipag

CASE OF LEOPOLDO GUILARAN

For Leopoldo Guilaran, known locally as Nong Poldo, grassroots breeding is an essential tool in empowering the rural populace. Seeds are power, he believes. Whoever controls the seeds controls the lives of those sowing them.

Nong Poldo was raised on a farm in Tapi village, Kabankalan City of southern Philippines' Negros Occidental. He was only five when his father, a foreman in a hacienda, bought the farm. Fruit trees, brought by his father from the hacienda, were planted on it. The farm was diverse and had contour bounds. During the mid-'70s, Nong Poldo's brother took over the management of the farm and turned it into a sugarland. The contour bounds had been leveled and the trees cut down. Everything but one quarter of a hectare left for rice was converted to sugarcane plantation. It was the beginning of the sugar boom. The situation remained that way until the sugar slump in the mid-'80s. The family was seriously hit by the crisis.

Rice monoculture

Some farmers started to diversify to rice unaware of the more complex problems besetting this another monoculture farming system. The single crop rice farming system, coupled with the costly chemical requirements, was implemented in the province under the Green Revolution and the Masagana '99 programs of the government since the early '70's. Traditional seeds were replaced by high yielding varieties or HYV's. Farmers in Tapi lost hold on many indigenous cultivars being grown for years in the village. At the Guilaran's land, corn was suggested by a government agriculturist since most parts of the farm were upland. Hybrid corn was sown. But the harvested seeds when replanted were no longer as good as the first grains sown. He asked the agriculturist why, but got no response. It was the seed, Nong Poldo knew. And since then, he realized the importance of it.

In 1991, the myths surrounding seeds and breeding were finally demystified. Nong Poldo, under the Masipag Program, was taught the basics of breeding, emasculation, cross-pollination, and many other scientific and technical knowledge on seeds and farming he once believed to be a monopoly of the scientists.

Breeding is done primarily to produce an improved cultivar. For Nong Poldo, his objectives could be summed up into the following: produce high yielding, early maturing, resistant to drought and diseases, and has good eating quality cultivars. He calls his selections GL where GL stands for Guilaran Lines. Nong Poldo started breeding in 1993. Until today, he has made 46 selections. Most of them have been in the verification farms of members all over the country. Parent materials were selected based on availability and the specific objectives set for every cross.

For his first four crosses, 34 have been selected and hundreds were discarded. They are now in their 12th filial of generation or F12. For Masipag cultivars, F6 is already considered stable lines. In 1996, Nong Poldo made additional eight crosses. The drought that struck the province brought about by the El Niño phenomenon in 1997 destroyed five of these crosses however. These crosses are now on the sixth filial of generation (F6) and are therefore considered stable lines.

In the MAPISAN Trial Farm in the province, Nong Poldo has produced 10 crosses. Sown early November of 1998, 25 crosses were actually made but rats ravaged the field destroying 15 of them. Except for M1-22-1, these rice cultivars are of traditional origin. Foremost in the objectives of these crosses is to produce an upland rice resistant to drought and infestation and has good yield. Many members of MAPISAN are upland farmers. Twelve selections have been produced from these crosses bringing to a total of 46 selections.

An additional nine crosses are made and now in their first filial of generation (F1). For these new crosses, upland and lowland cultivars were used as parent materials aiming to produce selections that could be for upland (tall selections) and lowland (short selections) agriculture.

Facilitating and hindering factors

Factors that hinder

***Lack of expertise**

His first attempt in breeding was a failure - no F1 seeds were produced. He needed more practice in emasculation. He was successful in removing the anthers, but would remove the ovary and stigma at the same time.

***Pests**

He tried in the second cropping. Cross-pollination was successful but rats harvested the grains before he did. The following cropping, he tried again and rats attacked once more, but this time with the help of insects.

***Climate**

In 1997, five of his eight crosses were damaged by the intense heat brought about by the El Niño phenomenon.

Factors that facilitate

***Ratooning**

The following cropping, tired of spending so much energies and not getting the needed results, he shortcut the process by using the ratoon crop. The plants were dug and transferred to pots with soil mixed with compost. They were watered everyday until flowering. He then emasculated and cross-pollinated and was successful on four crosses out of eight.

***Participatory selection**

Nong Poldo's many organizational tasks with the BUGANA Federation in his home village and later with the MAPISAN Alliance proved too cumbersome to take alone the responsibility of the lengthy selection process. Still at the third and fourth filial of generations (F3 and F4), he sent the GL seeds to network members and made the selection process a participatory undertaking.

***Family support**

While attending various organizational responsibilities including his breeding work at the MAPISAN Trial Farm in Oringao, Nong Poldo has his family to support him. Eldest son Dexter helps him in his breeding work

at the trial farm. He does emasculation. The third of the six siblings works on field preparation of the family farm in Tapi. Dexter also helps out during weekends. Aside from managing the farm, Nang Openg, Nong Poldo's wife, does weeding and harvesting.

*** Promising results**

The GL selections at the Masipag back-up station in Luzon are still in the adaptation stage. This early, however, station breeder Jimmy Gibe noted that some GL selections in Luzon have already been showing signs of resistance to certain pests and have promising yield. In Negros Occidental, the high yield in the mass production farms of some members could be attributed to seed adaptability, the breeding work being done in the same agrozone. Some members have attested their yield has doubled with the GL selections.

*** Resistance to pests and diseases, aside from good yield, has been noted by Mindanao members.**

However, the success of Masipag rice both in the fields and consumers' tables can also work negatively for the community-based biodiversity conservation efforts. Already, there are reports that some commercial breeders have been selling Masipag seeds. This phenomenon has raised alarm for many network members. But while there is reason to worry, Nong Poldo believes that total seed control is remote for the Masipag cultivars. Unlike with the high yielding varieties of seeds, the Masipag seeds have longer lasting germinating effectivity. The HYV's will not germinate after one or two cropping seasons.

As such, with the Masipag cultivars the traditional practice of on-farm seedbanking is being regenerated. Seed exchange, another healthy rural farm practice that had been responsible for the preservation and spread of various rice cultivars before the Green Revolution, is also being revived.

Nong Poldo's bred seeds continue to spread across the country along with hundreds of cultivars produced by other farmer-breeders of Masipag. But his organizational workload restrained him from further selections. With the network members continuing the process, breeding of the GL seeds has become a participatory endeavor. This enables him to do other important organizational tasks including speaking engagements both domestic and international. And he never ceases making rounds across the country to share with fellow farmers his knowledge and experience in grassroots breeding. (Today, Masipag has 685 traditional rice varieties in the community-managed (in-situ) seed banks and adaptability farms in 200 areas of the country. Farmer-led participatory breeding has produced 300 Masipag cultivars/selections.

Leopoldo Guilaran is currently the chairperson of the Board of Trustees of Masipag after serving as vice chair from 1995 to 2001. He was vice chair of the Masipan Alliance for two years until 1998.)

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