Rice Science FOR DECISION-MAKERS

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RATOONING INCREASES RICE PRODUCTION

KEY POINTS

- Ratooning provides a second harvest with minimal inputs and labor, offering food and modest income—especially to non-landowners such as tenants, farmworkers, and *dayo*. Supporting ratooning can help those who have limited access to regular sources of food and income.
- A well-functioning irrigation system is essential for ratoon regrowth. Policy support should prioritize irrigation infrastructure, especially in areas suitable for ratooning.
- Promote and distribute ratoon-friendly varieties (e.g., NSIC Rc 216, Rc 402, Rc 440) in collaboration with seed growers and local extension systems to ensure availability and uptake.
- Strengthen research and documentation of local knowledge and practices on ratooning to better inform context-appropriate support and scaling strategies.
- Ratooning is embedded in community practices and social arrangements like *kawang-gawa*. Any scale-up should be co-designed with farmers to avoid disrupting cultural values and informal livelihood systems.

INTRODUCTION

The local terms for rice ratooning are *sagibo* in Guimba and *sangang-buko* in Aliaga, Nueva Ecija. *Sangang-buko* literally translates as "that which branched out (*sanga*) from the joint (*buko*)," providing an accurate depiction of the rice ratooning process. Despite its cultural significance, academic literature focusing on the practices contextualized in these two towns is scarce. Some studies, such as the research by Gajete et al. (2018), explore the potentials of improved rice ratooning technology in rainfed rice production areas to achieve higher yields within shorter periods through prescribed nutrient application. However, fieldwork suggests that rainfed ratooning is generally unpopular among local farmers. Nevertheless, farmers "claim" that ratoon rice has better eating quality than that of the main crop because it is chemical-free. In a system where most government agricultural programs, if not all, are pro-landowner, the ratooning practice benefits non-landowners, such as *porsyentuhan* (permanent hired laborers or tenants) and *manananim* (laborers), allowing them to capture up to 100% of the value from ratooned rice harvests.

METHODOLOGY

This scoping research was conducted in Guimba and Aliaga. Approximately 12 hours of consented key informant interviews (KII), focus group discussions (FGD), and participant observations (PO) were carried out over four days with 40 farmers and field partners to achieve the objectives.

RATOONING PRACTICES IN GUIMBA

While the participants trace their farming heritage to their grandparents, the practice of ratooning or *pagsasagibo* in Guimba became possible with the availability of irrigation starting in 2007. Before then, farmers managed only one rainfed rice cropping period per year. They explained that without water, the stalks of the rice plant would not be able to produce *sagibo*.

Soil type and cropping pattern also contribute to viable ratooning. Soils that dry up quickly (*buhaghag*) are inferior to clayey or loamy soils in terms of ratooning. Additionally, a rice-other crops cropping pattern often requires immediate land preparation for the next crop, leaving little to no opportunity for rice ratoons to develop. Hence, *sagibo* thrives best in irrigated rice-rice cropping systems.

Farm laborers and landowners alike practice *pagsasagibo*. Farm laborers do it more often as *sagibo* is perceived as a *kawang-gawa* (good will) or *tulong* (aid) for the more needy. All harvested rice fields can be ratooned by anyone who has need. The common practice is *pag-aamot* or seeking the permission of the landowner to harvest the *sagibo* within their property. However, some individuals ratoon without permission, which is tolerated—especially among the *dayo* (outsiders) who come from other barangays or even provinces, such as Pampanga and Bulacan. While all fields can be ratooned, mini flags called *taraw* or *bandera*—made of a stick and a large piece of plastic—must be respected. A field that is *tinarawan* or *binanderahan* (flagged) warns that the field is already taken for *sagibo* and that livestock cannot graze on that area.

The standing ratoon crop is assessed by farmers as *maganda* or *hindi maganda* (profitable or not profitable to ratoon) based on the following physical characteristics: the grains are filled; ratoon tillers form a thick bunch (makapal); soil is not too dry; and the ratoons have not been applied with fertilizer and chemical pesticides. Based on their experience, NSIC Rc 216, Rc 160, and Rc 402 are the best varieties for ratooning as these mature early. Without nutrient and pest management, inbred rice ratoon yield can average 10 cavans per hectare (500 kg). With nutrient and pest management practices employed, this can yield two to three times more, but with increased production costs. The farmers also identified varieties which are *tamad* (lazy) or *mahina* (weak) in terms of ratooning, such as NSIC Rc 222 and hybrids. Hybrids are estimated to produce only half of what inbreds can yield. Moreover, stubbles of overripe grains produce fewer ratoons. The ratooners expect to harvest within 45 days from the main harvest. They also encounter pest problems such as stemborers, rice black bugs (*alitangya*), and rats, but they refrain from taking action to retain the desirable organic quality of the rice ratoon, which is primarily for their household food. Some of them, however, also sell milled rice to provide milk for their infants or school allowance for their children. The ratooners usually take home 100% of their *sagibo*, unless there is an agreement to share with the landowner or the *dayo*.

RATOONING PRACTICES IN ALIAGA

Three defined cropping scenarios happen in Aliaga: first is where, around 2 weeks after the main rice harvest, the land is immediately prepared for the next rice cropping; second, after the September harvest, farmers plant cash crops as they wait for the December irrigation schedule and; third, water is already insufficient for another production round, forcing farmers to wait a considerable time before the next irrigation schedule. Under the third scenario, farmers opt to ratoon to make the most of their waiting time. They are usually those with communal irrigation projects (CIP) in addition to the national irrigation, enabling them to regulate their water resource and have water when needed. Barangays Pantoc, Bibiclat, San Carlos, and Betes reckon with the third scenario. As with Guimba, *sangang-buko* is observed in early-harvesting areas that practice a rice-rice cropping pattern.

The Aliaga participants insisted that their practice is different from ratooning as they just leave the rice stubbles after harvest for usually about a month, and then wait for some more tillers to grow so they can harvest them. This delineation possibly stems from the presence of other variations of the ratooning practice in the municipality, such as ratoon-growing by first lodging the stubbles to the ground, causing ratoon tillers to emerge from the base instead of from the joints. In terms of yield, enabling factors, and environment, the ratooning practice in Aliaga is similar to that in Guimba. They only differ on the estimated number of practitioners, varietal preferences, and options

for fertilizer application. In Guimba, an estimated 30% of the rice farms are ratoon-harvested owing to its farmers' ownership of deepwell pumps; in Aliaga, it is estimated at 50%. Variety-wise, hybrids LongPing and SL-8 performed well in Aliaga, but not in Guimba. Farmers in Guimba who apply fertilizer to ratoon rice use urea 46-0-0; those in Aliaga uses ammonium sulfate 21-0-0. As to mechanized harvesting, the combine harvester is perceived in Aliaga as a hindrance to ratooning due to the possibility of degrading the soil quality and preventing them from doing *sangang-buko*. In Guimba, the combine harvester was perceived to have enabled greater adoption of ratooning.

VARIETIES WITH IMPRESSIVE RATOONING ABILITIES

Table 1. Ratooning ability of 10 popular RCEF varieties in DA-PhilRice Central Experiment Station, 2024 dry season (DS) and wet season (WS).

Variety	Fertilizer treatment (%N)	Yield (kg/ha)									
		2024DS					2024WS				
		Main crop	Ratoon Crop	Mean yield	Total yield (MC+RC)	Additional yield (%)	Main crop	Ratoon Crop	Mean yield	Total yield (MC+RC)	Additional yield (%)
NSIC Rc160	0	4672	171	186	4858	4	4428	no ratoon	–	4228	–
	15		134								
	30		253								
NSIC Rc216	0	4640	459	548	5188	12	5484	586	409	5893	7
	15		612					386			
	30		572					255			
NSIC Rc218	0	4543	127	177	4720	4	3096	no ratoon	–	3096	–
	15		186								
	30		217								
NSIC Rc222	0	4492	373	418	4910	9	5139	72	83	5222	2
	15		400					93			
	30		482					84			
NSIC Rc400	0	4543	95	182	4716	4	4712	no ratoon	–	4712	–
	15		175								
	30		251								
NSIC Rc402	0	4285	492	636	4921	15	5574	630	714	6288	13
	15		678					792			
	30		737					720			
NSIC Rc436	0	5032	170	220	5251	4	5084	303	383	5467	8
	15		216					471			
	30		271					374			
NSIC Rc440	0	5193	511	518	5711	10	5757	910	707	6464	12
	15		506					743			
	30		537					470			
NSIC Rc442	0	4738	234	236	4974	5	4889	no ratoon	–	4889	–
	15		237								
	30		236								
NSIC Rc480	0	4592	136	147	4739	3	4629	483	212	4841	5
	15		155					425			
	30		151					342			

Note: Fertilizer rate= %N applied at ratoon crops after harvest of the main crop.

Table 1 reports the results of a study on the ratooning ability of 10 varieties in the PhilRice Central Experiment station[1]. It was taken from the forthcoming 2024 Annual Report of the Department of Agriculture - Philippine Rice Research Institute.

All varieties produced ratoon tillers in the DS and yielded approximately 95-737 kg/ha with a mean yield of 147-636 kg/ha across N fertilizer treatment, and roughly an additional 2-13 cavans per hectare. NSIC Rc160, Rc218, Rc400, and Rc442 did not produce ratoon tillers in the WS because the stubbles rotted under excessive water conditions. Alternate wetting and drying (AWD) was the best water management practice for ratoon crops. Varieties with consistently high ratooning abilities regardless of season are NSIC Rc216, Rc402 and Rc440. Even without supplemental fertilizer, they can yield an additional 9-10 cavans per hectare. At only 15% N application, they yield 10-13 cavans per hectare (506-678 kg/ha); and 10.5-15 cavans at 30% N (537-737 kg/ha).

CALL FOR ACTION

- **Intensify irrigation interventions.** To optimize benefits from ratooning, a well-functioning irrigation system is a must. It is crucial that irrigation systems are established and properly maintained.

- **Solidify knowledge on ratooning.** This scoping study initially asserts that, while ratooning holds great promise, there is limited available evidence to explore the various facets that may inform its wider promotion and support.

- **Ensure availability of varieties for ratoon-friendly varieties.** It is clear from this research that certain varieties provide good outputs from ratooning. If local programs are to promote ratooning, selecting appropriate varieties is essential to maximize benefits. This requires concerted efforts with the seed growers to ensure adequate supply.

- **Study the pros and cons of providing large-scale support.** Ratooning is deeply rooted in local farming traditions. While large-scale support could promote varieties with strong ratooning ability and boost seed adoption, it may unintentionally alter customary practices such as *kawang-gawa*. A transition from ratooning as a household-level food source to a nationally driven practice risks altering its social and cultural significance. Therefore, support programs should be designed in close collaboration with farming communities to preserve cultural practices while encouraging higher productivity.

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ABOUT THE MATERIAL

Rice Science for Decision-Makers is published by the Department of Agriculture-Philippine Rice Research Institute (DA-PhilRice). It synthesizes findings in rice science to help craft decisions relating to rice production and technology adoption and adaptation. It also provides recommendations that may offer policy triggers to relevant rice stakeholders in search of opportunities to share their knowledge on rice-related products.

The articles featured here aim to improve the competitiveness of the Filipino rice farmers and the Philippine rice industry through policy research and advocacy.

This policy brief aims to bridge the gap in localized knowledge on ratooning–highlighting not only its potential to boost rice production, but also its cultural significance. Hyperlocal insights provide valuable input for designing policies that can optimize this practice and support improved rice yield outcomes.

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