

Smach Rice in Kampong Ror district, Svay Rieng province

Interview		
Date	Name	Place
16 October 2021	Samrith Chhoeung, head of community	Khseth, Kampong Ro
16 October 2021	Doung Hoeung, farmer	Ngor
22 October 2021	Seng Samoun, farmer	Ngor
22 October 2021	Roueng Oeun, farmer	Samyong
22 October 2021	Oy Samen, farmer	Bantheay Krang
23 October 2021	Ung Pech	Ngor
23 October 2021	Phoeuk Sari, farmer	Bantheay Krang
07 December 2021	Thun Vathany, specialist officer at Cardi	Cardi office

Introduction

Svay Rieng is an agricultural province of lowland rice fields bordering Vietnam in the South. Although industry and service sectors are actively operating business activities in the province, the prime economy basically depends on business-based agriculture especially rice production. Approximately 68.5 percent of provincial total population have prime occupation as famers.

Regarding to rice production, there are many types varieties of rice to be produced in Svay Rieng such as Romdul, Krasang Teap, ER etc.,. Smach is a name of heavy seasonal red-colored rice, which is largely produced in a district of Svay Rieng province namely Kampong Ro. In Cambodia, the growth of Smach rice is rarely due to it is only local consumption and not a kind of rice export to international market.

Farmers have called it as an ancestral rice because it has been grown in that location from ancestry to the present. Even though farmers failed to grow it, the rice still grows in the field that they used to grow. The farmers said that when they returned to their villages after the war ended (After Pol Pot genocide), they saw Smach rice grow in the fields and then they collected it to be variety and continued to produce it until today.

It takes six full months to cultivate Smach rice, with farmers starting planting in the rainy season in June and harvesting in the dry season in late December or early January. Smach rice is a very seasonal type of rice, although planting begins before June, it always flowers in November and bears fruit in late December or early January.



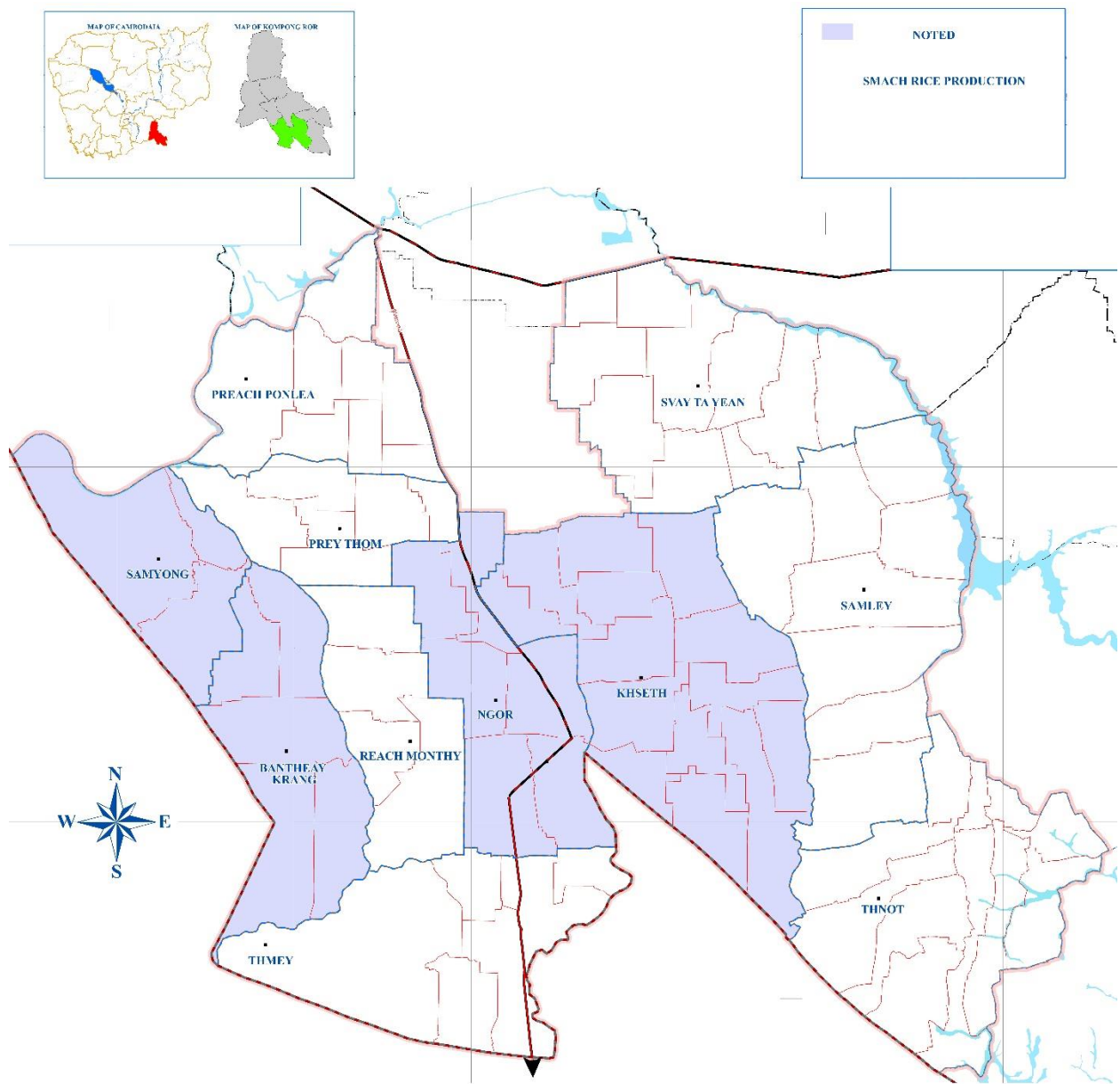
Source: cardi

Geographical area

Smach rice production occurs in Kampong Ro district, which is a deep lowland area and type of Prateah Lang soil which its feature provides the fields with drainage and can store water for long time until the dry season. According to White, Oberthur and Sovuthy (1997) Prateah Lang soils are characterized by a lighter textured topsoil overlying a heavier textured subsoil. The light surface soil is very light gray or pale brown and may have a pinkish tinge when dry. Plinthite development in the subsoil is usually a prominent feature of this soil. The soil makes up a substantial part of the old colluvial- alluvial terraces with the soil occurring in the upper fields generally having a sandier topsoil than soil occurring in the lower fields.



Map of Smach rice production under management of community



Type of Smach rice

There are two varieties of Smach rice they used to produce include large seeds and small seeds. At present, farmers grow only small-seeded because it is softer and purifier than large-seeds variety. However, having large-seed rice does not meet market needs due to it is hard cooked rice.

In 2016, the name “Smach 02” was introduced by Cambodian Agricultural Research and Development Institute (CARDI), a semi-autonomous institute under the ministry of agriculture and ministry of finance Cambodia. Smach 02 is a purified variety from Smach rice base on its standard characteristics and market’s requirements. The process of Smach 02 selection is:

- Sample of Smach rice was collected from seven rice fields in Kampong Ro district
- Then it was technically selected as Smach rice variety and experimentally grew in the field
- After harvested, Smach rice was purified good variety and experimentally grew again and again for three seasons.
- The experiment categorized Smach rice into two types Smach 01 and Smach 02.
- The difference between the two categories indicated that Smach 02 was much quality than Smach 01 in terms of its shape, yield and standard for market’s requirement.
- Cardi selected Smach 02 to conducted field demo in Kampong Ro to show farmers about the difference between Smach 02 and farmers’ Smach rice variety.
- By its comparison, farmers preferred Smach 02 to their Smach rice variety in terms of yield, which was 15% higher than farmers’ Smach rice variety.
- Finally, Cardi released Smach 02 variety to the market for community, company that needed to produce Smach rice.

Currently, Smach 02 has been produced by operators of Smach Kampong Ro Rice Agricultural Development Community. According to Cardi’s study (2016) the characteristics of Smach 02 are

- Parent : Smach (Kampong Ro Agricultural Cooperative, Svay Rieng)
- Maturity (Date of flowering) : End of November
- Plant height (cm) : 160 – 170
- Productive tillers : 7 – 10
- Yield (t/ha) : 3.2 – 4.2

- Grain per panicle : 160 – 200
- Panicle length (cm) : 26 – 30
- Tolerance to abiotic stress : Not applicable
- Resistance to biotic : Not applicable
- Grain length (mm) : 6.5
- Grain width (mm) : 1.8
- L:W ratio : 3.6
- Brown rice shape : Slender
- 100 grain weight (g) : 1.9
- Milling recovery (%) : 69.0
- Head rice recovery (%) : 64.0
- Chalkiness score : Red kernel
- Amylose Content (%) : 18.4
- Gel Consistency (mm) : 79.0
- Gelatinization temperature : Intermediate
- Raw rice appearance : Semi-translucent
- Raw rice acceptability : Good
- Cooked rice acceptability : Good
- Aroma (scent) : None

Smach 02 harvesting

Base on farmer notes guided by Cardi, the Smach 02 production is described below:

Rice growth

- For transplanted rice, the required amount of seeds is 30 to 40 kg per hectare. But pure and healthy seeds, as well as good water management and maintenance, the amount of seeds needed per hectare is only 15 to 20 kg.
- For seedlings to grow well, one kilogram of seeds is sown on 10 square meters of field.
- Seedlings should be planted near a water source but away from the shade of a forest or a place with electricity to avoid damage from pests.

- It is advisable to transplant seedlings that are 25-30 days old and 2-3 plants per clump.
- The soil should be well prepared and flat before transplanting or sowing.
- Plowing should be done 2-3 times is better
- If the field can be irrigated after transplanting or sowing for 20 days, it should drain all the water in the field for 2-4 days and then add water again in order to make the rice more weeding.

Fertilizer application

- Appropriate fertilizer application according to the guidelines will not cause any deterioration.
- It should fertilize 2-3 times per life cycle of rice.
- Spray the bottom before transplanting with 5 tons of natural fertilizer per hectare and combine with chemical fertilizer to the soil as shown in the table.
- The amount of supplement fertilizer for the first and second time is in accordance with Table 1. The spraying time must be in accordance with Table 2.

Table 1

Soil group	Heavy rice					
	Spray the bottom before transplanting or sowing (Kg/ha)			Urea fertilizer supplement (Kg/ha)		
	Urea 46-0-0	D A P 18-46-0	Potassium 0-0-60		1st time	2nd time
Prey Khmer	10	20	40		20	10
Prateah Lang	10	50	25		25	25
Bakan or Orung	25	25	25		50	25
Tul Samrong	25	50	0		25	25
Kok Trob	10	50	50		40	35
Kampong Siem	30	0	0		40	30
Kien Svay	Land along the river bank and slope from the river bank, suitable for light rice					
Kro kor	It is a long-flooded land where farmers grow rice on the water.					
Kbal Pur						

Table 2

Sowing time	First Supplement	Second Supplement
1-31 June	30 days after transplanting	5-9 September
1-15 July	30 days after transplanting	10-14 September
16-30 July	30 days after transplanting	15-19 September

Rice harvesting

- When rice pods consist of grain more than half rice pods with dark yellow in color, and full grain half down with light yellow in color. Rice which has failed to develop is dark brown parrot wings in color.
- Rice can be dried on a mat, mosquito net, rubber tent, and on concret that does not cause differences in grain or seed quality. The thickness of the floor for drying rice is 2-3 cm.
- Sunlight is a major factor in determining the drying time and quality of rice.
 - Good day light, it needs only one day to dry and waves every half hour.
 - Medium day light, it needs two days to dry and waves every one hour.
 - Poor day light, it needs three days to dry and waves every two hours.
- Rice seeds should be packed in plastic bags, tied tightly, put in another bag and kept separate from other rice grains that are well dried and free from damage from rates, chickens, ducks and so on.
- Harvested rice is stored in good place to prevent rates, chickens and ducks as well as dried area.

Consumption of Smach rice

Smach rice is a kind of red grain containing callulos (fat reduction), 18.4% of amylos level. These substances are recognized as benefits for health supports such as swollen, arthritis and diabetes.

For those who have eaten Smach rice recognize its benefits for health supports. They indicate that eating this rice can reduce swollen, arthritis and diabetes. However, there is no scientific experiment and recognition from any institution on the quality and effectiveness of eating rice.

The head of the Smach rice community said that in the past, the provincial department of agriculture had taken samples to check the quality, but had not received any feedback. Therefore, the quality of Smach rice is only recognized by consumers by continuing to order and praise the quality of rice only.

In general, cooked Smach rice is often eaten with dry food such as dried meat and dried fish. There are two types of milled rice: 100% milled brown rice and 70% milled brown rice. The consumption of those types is depending on the preference of the consumers.

a. Characteristics of 100% milled brown rice

- Redness is stronger
- Non-stick rice cooking
- Hard and slightly salty grains
- Chewing rice is rough.

b. Characteristics of 70% brown rice

- Redness is lighter
- Sticky rice cooking
- Soft rice cooking
- Easy to chew rice

Smach rice market

Early 2000s, more farmers in Kampong Ro district grew Smach rice because there was a good market with a lot of orders both in the country as well as abroad such as Vietnam and Thailand. Currently, farmers in the area are less focused on Smach rice farming because the main problem is rice care to avoid cattle. Generally, rice is fully harvested during October and November, except Smach rice that has not yet harvested till end of December. Farmers release cow and buffalo to rice field for straw after harvested, that is the reason that cattle see and eat Smach rice. another reason is yield of Smach rice, which is lower than other types of rice. Moreover, Smach rice is only produced for family consumption and local needs. It has not yet focused on international market.

- Smach rice is packaged in plastic bags of 1 kg, sold for 6,000 Riel (1.5 US dollar) from the Smach Kampong Ro Rice Agricultural Development Community, while the paddy is packaged in 25 kg of bag. On the package of paddy bag and rice plastic bag, there is a label of a product of Smach Kampong Ro Rice Agricultural Development Community.
- The price of Smach rice is more expensive than other types of rice. Normally, unpolished rice ranges from 1,500 riel (0.35 US dollar) to 1,700 riel (0.40 US dollar) per kilogram, and the selling price of Smach rice variety is 3,500 riel (0.87 US dollar) per kilogram. An average, 10 kilograms of rice are able to polish 6 kilograms of 100% milled brown rice and 6.5 kilograms of 70% brown rice.
- Smach rice variety are not sold in the market, farmers buy the it from Smach Kampong Ro Rice Agricultural Development Community or get support from the provincial department of agriculture, which buys from the same community.
- Consumer of Smach rice market is a group of people with a high average income because the price of Smach rice is three times more expensive than regular rice on average. Meanwhile, customers who buy Smach rice are always aware of the effectiveness of this rice in relation to health supports.
- Smach rice has a high market demand, but the market size is not yet wide and cultivation is still limited. Customers buy this rice through the reputation of the Smach Kampong Ro Rice Agricultural Development Community, which ensures its purity.
- The yield of rice for the market supply increases every year as this type of rice maintains high prices, the rice yield is sold and supplied in the market, and the community directly encourages the farmers to increase their cultivation.
- Red jasmine rice which its variety imported from Thailand and it is producing widely in provinces. It is considered as a competitor with Smach rice because both rice types have similar characteristics, some sellers call red jasmine rice a light seasonal Smach rice. There is no technically comparison the difference between the two types, but red jasmine rice is a medium seasonal rice with cheaper price than Smach rice as well as it is easier to find than Smach rice at the Cambodian markets, whereas Smach rice is mostly sold by Kampong Ro Smach rice community.

Management and Conservation

Smach rice is classified as a local production and recognized by the Svay Rieng Provincial Department of Agriculture, Forestry and Fisheries through registration number 119 កែសក់ dated 01 March 2013 for Smach Kampong Ro Rice Agricultural Development Community located at Svay Anath village, Ngor commune, Kampong Ro district, Svay Rieng province. The establishment of this community aim to facilitate the leadership and management of business activities, handicrafts, trading of agricultural products, agricultural equipment of the community to effectively improve the lives of families and contribute to socio-economic development. Currently, the community currently has 11 staff members, including a six-member board and a five-member agricultural community oversight committee. Moreover, the land for production consists of 68 ha of total rice field and 74 operators within four communes include Samyong, Bantheay Krang, Ngor and Khseth.

The community uses the Smach rice product logo affixed to rice bags and sacks to indicate the good quality and reliability of the rice grown by the community operators.

Currently, the community does not have own warehouse, the rice and paddy are stored in the houses of the farmers where each member of the operator. At the time of the order, the community contacts the operator members to take the paddy to be milled and packaged for the customer.



Impact Analyze

- The Smach rice production has decreased due to the lack of market expansion. Currently, Smach rice product supplies to the market locally. The stakeholders of community hope that project supports marketing and promotion of Smach rice nationally and internationally.
- The Smach rice is a kind of healthy food product, especially for old people. Most people accept the benefit for reducing diabetic disease. However, it has not any official recognition to prove the quality. From this project will push the public recognition through releasing certificate to prove the quality of Smach rice product.
- Rice production is the main agricultural occupation of farmers in Svay Rieng province. The improvement of rice production, especially, Smach rice will positively impact on rural development and its economic and social aspects. This will be done by collaboration with other institutes to build up and strengthen production managed by community in Kampong Ro district.

Conclusion

Strengths

- Unique product largely grows in Kampong Ro area and recognized by Svay Rieng provincial department of agriculture.
- Well known as healthy food consumption for people.
- More market demands locally with high income consumers

Weakness

- Farmers decrease produce due to the main problem is rice care to avoids cattle.
- The market of Smach rice is narrow with local consumption and target consumers are medium income people.
- There is no official certificate to prove the quality of Smach rice as healthy food.
- Most farmers less focus on producing Smach rice due to small demand locally.

Ongoing activities

- Promote marketing strategy to raise awareness of Smach rice nationally
- Community should closely work with Cardi or other partners to strengthen operators to produce Smach rice based unique qualified product
- Promote Smach rice to international markets by improve packaging and product quality

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