Organic Upland Rice Seed Production in Nueva Vizcaya, Philippines

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Abstract

Rice plays a dominant role in crop production for upland areas in the Philippines. It is the key crop in agricultural land use. The passage of the Organic Agriculture Act of 2010, otherwise known as RA 10068 signals a paradigm shift in agricultural production from conventional to organic agriculture. It is the state's policy to promote, propagate, develop further and implement the practice of organic agriculture that will cumulatively condition and enrich the soil and increase farm productivity. Giving importance and full support to the genetic improvement and technology will not only complement the production in the lowland areas but a good and safe source of food for our enlarging population. Growing of Organic Upland Rice in Nueva Vizcaya, Philippines was a traditional practice of our farmers in the marginal areas. However this practice was not given importance because of only small areas and production is low. This project aims to harness the potential of upland rice ecosystem as one source of rice supply in the province, to purify and mass produce indigenous rice cultivars collected in the province. The Seed production area was established at the Department of Agriculture-Nueva Vizcaya Experiment Station Tapaya, Villaros, Bagabag, Nueva Vizcaya, Philippines with an area of 2.0 hectares hilly area planted with different traditional rice varieties coming from different municipalities of Nueva Vizcaya like Galo lines from Alfonso Castañeda, Nueva Vizcaya, Philippines Mindoro lines from Sta Fe, Nueva Vizcaya, Philippines and Palawan lines from Ambaguio, Nueva Vizcaya, Philippines. Implemented and adopted the technologies that are Organic-based, those are acceptable by farmers and suit in the local condition and in accordance with their level of investment. The produce seeds were distributed to farmers through Community Seed Banking (CSB) program which is an extension tool to increase farmer's access to seeds. Traditional upland rice's are the most valuable rice produce and it is strongly patronized because of its good eating quality and savourness. A seed system service was offered to 10 farmers in municipalities where 5 hectares were planted and harvested. The production was redistributed to 20 farmers in the municipalities of Villaverde and Aritao,

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Nueva Vizcaya, Philippines with total area of 12 hectares served as the expansion area. The project started with an initial area of 0.50 Hectare and now expanded to 2.0 hectares

Keywords : collection, characterization, multiplication, distribution

Introduction

Traditional rice varieties (TRVs) or landraces are products of careful and continuous selection by farmers based on preferences and influence of natural pest pressure, hence, they develop and evolve. They vary in pest resistance, pericarp color, and even in grain length and weight (Frei and Becker, 2005). Moreover, traditional rice varieties particularly have become a part of the culture of farming communities – a wealth of heritage rice cultivars continually produced through generations, preserved for festivals, marriages, and other ceremonies and are processed as delicacies for special occasions (CECAP, 2000a). They are a heritage as their cultivation allows farmers to protect their soil and ecosystem and exert control over the seeds their forefather had carefully selected for centuries (CECAP, 2000b).

One component on how to achieve highest yield in rice farming is by choosing the well performed variety. Some farmers claim that good harvest starts from good seeds. Tapping the potential cultivation of upland rice could help to feed the ever increasing population and increase the income generating business of one family especially those who lived in rolling and mountainous areas. The high plateaus of Nueva Vizcaya are typical site of rice cultivation in the highlands. Rice is the staple food in this densely populated area.

The present paper reports on the characterization of 3 traditional rice varieties identified at Alfonso Castaneda, Sta Fe and Ambaguio, Nueva Vizcaya, Philippines. The collected traditional rice varieties was established at the Department of Agriculture, Nueva Vizcaya Experiment Station, Tapaya, Villaros, Bagabag, Nueva Vizcaya, Philippines, the produce seeds served as planting materials and distributed to upland rice farmers willing to adopt organic agriculture**.**

Materials and Methods

Project staffs in collaboration with the Municipal Agricultural Office staffs collected existing traditional rice varieties in their municipality where is known to upland rice cultivators in upland municipalities of Nueva Vizcaya Philippines. These are Galo from Alfonso Castaneda, Palawan from Ambaguio and Mindoro from Sta Fe. Local names and source was recorded.

The collected traditional rice varieties were planted to 2.0 hectares area at Department of Agriculture-Nueva Vizcaya Experiment Station, Tapaya, Villaros, Bagabag, Nueva Vizcaya. The technology for production was based on the Philippine National Standards for Organic Agriculture. The area served as the technology demonstration site that showcased organic agriculture. Characteristics, resistance to pest and diseases and crop cut yield were recorded.

Field visitation was conducted to witness the standing crop and choose the best traditional rice variety. Technical briefing was conducted to the Seed Buffer Community members before the distribution of planting materials.

Result and Discussion

The study aimed to characterized and evaluated three rice cultivars which have good potential to farmers of Nueva Vizcaya. Results and their important implications are presented and discussed in this portion.

Profile of Farmers Growing Traditional Upland Rice in Nueva Vizcaya, Philippines

Farmer respondents aged 30-50 years old and have been farming from a minimum of one to over 15 years and they grow TRVs mainly for home consumption (Table 1). Other crops grown include sweet peas, taro, ginger and root crops.

Table 1. Profile of farmers growing TRVs in Nueva Vizcaya, Philippines

Name of farmer	Address	Age	Years in farming TRVs	TRVs planted	Area planted (M^2)	Reasons for planting TRVs
Julie-an E. Anggo	Purok 9,Lublub,Alfonso Castañeda,NV	35	5	Galo	10,000	Home consumption
William Atiwen	Purok 9,Lublub,Alfonso Castañeda,NV	41	15	Galo	5,000	Home consumption For market
Colis Pawil	Purok 9,Lublub,Alfonso Castañeda,NV	42	12	Galo	5,000	Home consumption
Daniel P. Gaddingan	Pullaan,Poblacion, Ambaguio,NV	39	15	Palawan	5,000	Home consumption For market
Nemesio Imedew	Camandag, Ambaguio,NV	35	15	Palawan	5,000	Home consumption
Simo Binando	Buyasyas, Sta Fe,NV	38	15	Mindoro	5,000	Home consumption
Vicente Ligmayo	Buyasyas, Sta Fe,NV	44	12	Mindoro	3,000	Home consumption
Proseso Mallana	Buyasyas, Sta Fe,NV	52	15	Mindoro	6,500	Home consumption

Cultural and Management Practices

Farmers grow TRVs once a year at the onset of the rainy season late in the month of May to early July since production areas for TRVs are located in the hills and are dependent on rainfall for irrigation. Manual land clearing was done. Farmers used grab hoe to cultivate and pulverize the soil before planting. Most of the farmers mentioned they are still practicing the Bayanihan system during the major operations including land preparation, planting, and weeding. In this, their neighbors take turn in providing free services to help one another in the farm.

Farmers practice direct seeding through dibble method (6-10) seeds per hill are sown. Hills consist of continuous adjacent holes running horizontally across the slope made through the use of a wooden stick called Asad.

Farmers do not apply any kind of fertilizers or chemical pesticides, they manually controlled weeds and protect grains from birds and rodents. Weed control is done once or twice during the vegetative stage and follow up if necessary. During heading stage, farm borders are cleaned to ward off rats. Scarecrow, network of string with hanging cans, and bamboo clappers were means for reducing bird damage. At harvest, they use scythes for cutting individual hills they bundled many and threshed manually. Seeds which will be used for planting are stored for 6 to 7 months until the next cropping.

Cultivars at Vegetative Stage and Reproductive Stage

The TVRS characterized based on traits of blade color, plant height and leaf angle (Andal and Sana, 2008). Galo had pale green, Palawan is green and Mindoro purple tips for blade color while for their leaf angle Galo and Palawan are both drooping while Mindoro was erect. Panicles of the three cultivars were either open (Galo and Mindoro) or compact (Palawan) but were exserted. All of the cultivars were fully awned which short (Galo and Palawan) or long (Mindoro). Awned cultivars are believed to have added protection specifically against birds. They are all non-glutinous in terms of endosperm type and scented grains. These aromatic cultivars gain special consumer preference for this trait. Mindoro and Palawan are shattering types while Galo is non-shattering type. Grains were relatively heavy based on the weight of 1,000 grains ranging 28.5 g in Mindoro, 24.5 g in Palawan and 21.5 g in Galo. Yield was low in Mindoro having .25 ton/hectare, in Palawan having 1 ton/hectare while Galo have 1.2ton/hectare.

Community Seed Bank Members

Identified upland farmers are recipients of the seed production component of the project. The best performer variety from among the three varieties characterized was distributed for them to multiply and to be redistributed to other upland members as the expansion area (Table 2 and 3)

Table 2. Distribution of Started Seeds to Community Seed Bank Members/Recipients

Members	Address	Variety	Quantity (Kgs)	Area(Ha) planted
1.Jose Baldino	Labang,Ambaguio,NV	Galo	20	.50
2.Leo Palnac	Laylaya,Ambaguio,NV	Galo	20	.50
3.Herman Omas	Laylaya,Ambaguio,NV	Galo	20	.50
4.Alice Manuel	Laylaya,Ambaguio,NV	Galo	20	.50
5.Rita Natalnac	Poblacion,Ambaguio,NV	Galo	20	.50
6.Sonny M. Ponciano	Bulala,Dupax Norte,NV	Galo	20	.50
7.Nap M. Ponce	Bulala,Dupax Norte,NV	Galo	20	.50
8.Cesar Santiago	Bulala,Dupax Norte,NV	Galo	20	.50
9.Marcos S. Tahiyo	Bulala,Dupax Norte,NV	Galo	20	.50
10.Lilibeth P. Purasan	Bulala,Dupax Norte,NV	Galo	20	.50

Table 3. Recipients for Expansion Areas from Community Seed Bank Members

Name	Address	Variety	Quantity (Kgs)	Area(Ha) planted
1.Donato Dulyok	Cabuluan,Villaverde,NV	Galo	20	1
2.Domingo Kayangna	Cabuluan,Villaverde,NV	Galo	40	1
3.Marcelino Tayaban	Cabuluan,Villaverde,NV	Galo	20	.50
4.Pascual B. Bulahad	Cabuluan,Villaverde,NV	Galo	40	1
5.Antonio Evangelista	Balite, Aritao, NV	Galo	20	.50
6.Linda P. Dapig	Balite, Aritao, NV	Galo	20	.50
7.Julita A. Lorenzo	Balite,Aritao, NV	Galo	20	.50
8.Mina Dupigao	Aritao, NV	Galo	20	.50
9.Denson Quinones	Aritao, NV	Galo	20	.50
10.Regina Agbanlig	Aritao, NV	Galo	20	.50
11.Joseph Fragata	Latar,Aritao, NV	Galo	20	.50
12.Romeo Keyod	Cabuluan,Villaverde,NV	Galo	20	1
13.Marcelino Tayaban	Cabuluan,Villaverde,NV	Galo	20	.50
14.Robita P. Bu-ucan	Cabuluan,Villaverde,NV	Galo	20	.50
15.Gina D. Pasigon	Cabuluan,Villaverde,NV	Galo	20	.50
16.Daisy M. Linnan	Cabuluan,Villaverde,NV	Galo	20	.50
17.Cherry Grace Bunnag	Cabuluan,Villaverde,NV	Galo	20	.50
18.George Pahiwon	Cabuluan,Villaverde,NV	Galo	20	.50
19.Lando Vicente	Cabuluan,Villaverde,NV	Galo	20	.50
20.Arthure Bu-ucan	Cabuluan,Villaverde,NV	Galo	20	.50

Conclusion

Three Traditional rice varieties from three Municipalities in Nueva Vizcaya, Philippines were characterized in the study based on morpho-agronomic traits. Actual field observations were done and farmers were interviewed in the production site. Farmers do not apply any chemical pesticides to control insect pests and diseases. However, conditions and practices favoring pest control were noted in the production site. Farmers

continue to grow TRVs for home consumption with particular cultivar preference for eating quality and adaptation. Galo variety gave the most production and is therefore recommended for the Seed Bank Community members for expansion areas.

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