

FACT SHEET:

Technical Note on Soil Sampling

by: Fiji Agricultural Chemistry Laboratory
Koronivia Research Station



Release of Sitara & Cagivou Rice varieties

Scientific Name: *Oryza sativa*

Common Name: Rice

Family: Grasses

Rice is one of the world's most important food crops. In Fiji, rice is taking an important position as staple food in parallel with root crops. Currently, Fiji is importing an average of 36, 200 tonnes of rice valued at about \$37.5million annually. The annual rice production in Fiji is 7,000 tonnes. Therefore improving package of practice, introduction of new technology which includes cultivation of high yielding rice varieties are essential to increase production.

Aerobic Rice

Aerobic rice is a renewed way of growing rice in non-submerged, un-puddled condition in aerated soils. Aerobic rice is grown like any other crops like Maize or Sorghum on dry soils with surface irrigations provided when necessary with intensive agronomic practices. Varieties adapted to aerobic management systems require the ability to maintain rapid growth in soils with moisture content at or below field capacity.

Aerobic rice share this ability with traditional upland rice varieties, which usually have deep root systems and tolerate water stress at both the vegetative and reproductive stages. It is stated as "MORE YIELD PER FIELD" WITH LESS WATER". Therefore, aerobic rice variety is recommended to be planted in upland condition (Rainfed).

The Aerobic rice cultivation system is sustainable rice production methodology for the immediate future to address water scarcity and environmental safety in the scenario of global warming (Hittalmani, 2010).

After years of research on 8 Aerobic rice varieties, two varieties are recommended to release for commercial cultivation. The two varieties are named Sitara and Cagivou which yields upto 8tons/ha. These varieties have good adaptation characters to dry land areas, good eating quality and good yield. Farmers are encouraged to plant these varieties. Ministry of Agriculture Research Division will produce and supply quality foundation seeds to farmers.

Advantages of cultivating Aerobic Rice

- Direct seed sowing
- Nursery and transplanting is not required
- Less labour requirement
- Rainfed- requires less and less water.
- Efficient fertilizer utilization
- Less pest / disease incidence
- Reduced/no methane emission leading to lower environment pollution
- Profuse rooting and High tillering, high grain yield and fodder yield.
- Retention of soil structure and quality

Seed rate

- Broadcasting – 60-90kg/ha
- Seed drill – 100kg/ha

Water requirements

- Rainfed
- Requires less water



Sitara variety Demo Plot at Koronivia Research Station

Land Preparation

- 1 ploughing
- 1 disc harrowing at 2 - 3 weeks interval in dry weather
- 2nd ploughing
- 2 rotovating

Fertilizer rates

The rate of fertilizer N:P:K which is as 50:20:75.

- Urea (N) – 110kg/ha (2 split application – 60% (66kg) at tillering stage, 40% (44kg) before panicle initiation)
- Single superphosphate – 100kg/ha – (100% application at planting)
- Muriate of potash – 150kg/ha – (60% (90kg) at planting and 40% (60kg) before panicle initiation)

Weed Control

1. Narrow leaf weeds

Control: spray Propal 350ml/16 L of water (2-3 weeks after transplanting).

2. Broad leaf Weeds

Control: Spray MCPA 85-110ml/16 L of water (2-3 weeks after planting or at the three tiller stage of crop).

Pest Management

1. Brown Plant Hopper

Control: Spray Diazinon 48ml/16L of Water or Bifenthrin in 20ml/16 L of water at the base of the plant.

2. Leaf roller

Control: Apply Diazinon 48mls/16L of Water or Bifenthrin 20ml/16 L water or Malathion at 30 ml/16L water.

3. Rice Army Worm

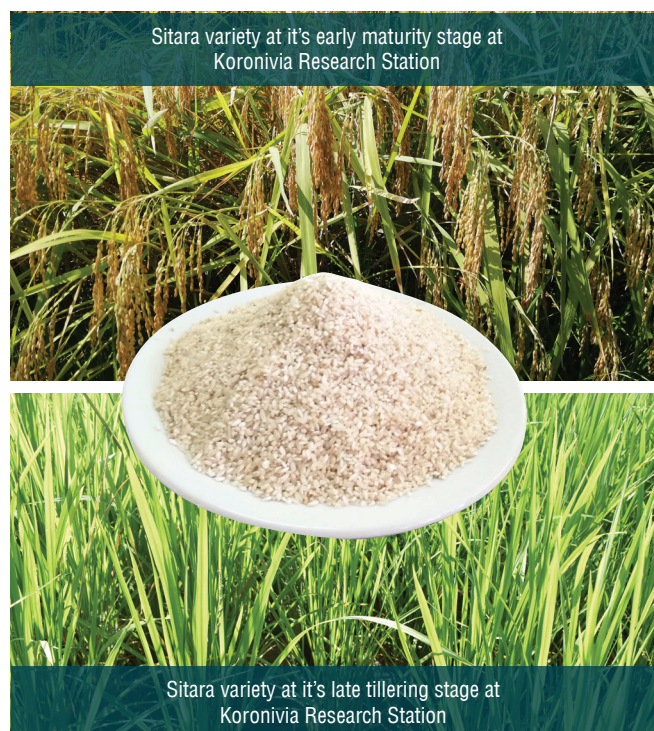
Control: Spray Carbicide 85 (800g/kg Carbaryl WP) at 29 gms per 16 L of water or Malathion at 30 ml/16L water.

Table 1.0 Nutritional Value of Aerobic Rice

Nutrient	Amount/serving (300grams)
Calories	390
Total fat	2.01
Sodium	0.003
Carbohydrates	28g
Dietary fibre	0.4g
Sugar	0.1g
Protein	6.14g
Vitamin A	1%
Calcium	0.02%
Iron	1 %
Vitamin B6	5%
Magnesium	0.12%

Minimum Descriptor of two varieties:

Characters	Sitara Variety	Cagivou Variety
Origin	IRRI Philippines	IRRI Philippines
Local names	Sitara	Cagivou
Yield t/ha	8 tons/ha	8 tons/ha
Best time to plant	All year around	All year around
Maturity Duration	115-120days	100-115days
Plant height	125cm	120cm
Numbers of tillers	15	14
Grain length	27.8cm	27.5cm
Flag leaf length	46.1cm	42.9cm
Flag leaf width	1.57cm	1.72cm
Setting percentage	80.92 %	82.15%
Thousand kernel weight	29.54g	29.5g



Gross Margin Analysis

1.0 Income

Estimated yield of variety 8t/ha

Estimated price @ \$0.80/kg - \$6,400.00

Input Costs

Fertilizer Rate: N:P:K	50:20:75kg /ha	Unit	Quantity	Price	Total
Single Super phosphate	(100kg)	50kg bag	2 bags	\$20.00	\$40.00
Potash -	(150 KG)	50kg bag	3 bags	\$20.00	\$60.00
Urea -	(110KG)	50kg bag	2.5 bags	\$20.00	\$50.00
					150.00

Weedicide/ Pesticide

Propal	4 litres	\$9.95	\$39.80
MCPA	4 litres	\$27.40	\$27.40
Bifenthrin	2 litres	\$11.45	\$22.90
			\$90.10

Machinery Hire

Ploughing	5 hours	\$28.00	\$140.00
Harrow	5 hours	\$28.00	\$140.00

\$280.00

Mini combine harvester	2.5 hours	\$17.45	\$43.63
			\$43.63

Labour Hire

Broadcasting	person/day	1	\$20.00	\$20.00
Fertilizer application	person/day	3	\$20.00	\$60.00
Pesticide application	person/day	3	\$20.00	\$60.00
Weedicide application	person/day	2	\$20.00	\$40.00
Manual weeding	person/day	3	\$20.00	\$60.00

\$240.00

Other Cost

Empty bags number	266	\$1.15	\$305.90
Transport	4 times	\$50.00	\$200.00
Seeds	90 kg	\$0.47	\$42.30

\$548.20

Yield	8t/ha
Gross Income	\$6,400.00
Total Expenditure	\$1,351.93
Gross Margin	\$5,048.07

