Upland Rice
Cultivation Guide



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UPLAND RICE VARIETIES

NARO/NaCRRI has released 5 Upland Rice Varieties being grown by farmers . They are more superior to the previous variety **Abilony** (IRAT 112).

NARIC 1 (ITA 257): Maturity 115 - 120 days Yield 3.5- 4 t / ha

NARIC 2 (ITA 325): Maturity 115 - 120 days Yield 3 - 3.5 t / ha

NERICA 4 (NARIC 3): Maturity 110 - 120 days Yield 4 - 5 t / ha
This variety is also known as SUPARICA 2

NERICA 1: Maturity 105- 115 days. Yield 3–4 t / ha with aroma.

NERICA 10: Maturity 100 - 105 days Yield 3–4 t / ha Grain with long awn



NERICA 1



NERICA 4



NERICA 10

Note: However, yields of upland rice depend largely on the rainfall pattern and good agronomic practices like weeding and fertilization.

RAINFALL AND FIELDS

You have to check rainfall pattern in your area. Upland rice grow well where 5 days total rainfall is more than 20 mm from sowing to 15 days before harvesting (about 90 days). Field location should preferably be in the low lying areas since these areas have more water available to sustain rice to maturity.
It is advisable to make bands around the field to avoid rain water from running off.

GERMINATION TEST

Before sowing, a germination test should be done to ensure 80% germination. The following procedure should be used;

1. Count 100 seeds
2. Soak seeds for 24 hrs
3. Wrap seeds in wet paper / cotton wool
4. Incubate for 2 days
5. Count the number of seeds that have germinated

If the germination percentage is lower than 80%, then use a higher seed rate.

SEED

Since rice is self-pollinated plant, rice seed can be produced by yourself. Planting 1 kg of seeds can produce 50–60 kg seed.

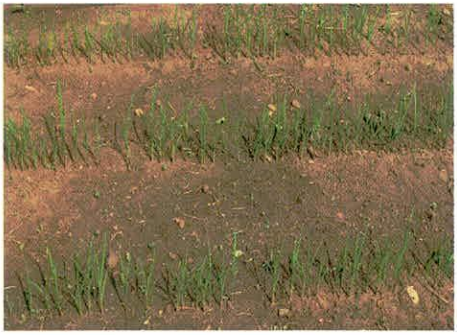
SEED SELECTION AT PLANTING



It is difficult to determine seed viability with the naked eye. It is advisable to carry out seed selection using the floatation method. Separate sunken seeds (filled grain) with high potential to germinate from those that float (empty grain) that are unable to germinate.

PLANTING METHODS

There are 3 methods of planting upland rice namely; Drill, Dibble, Broadcast. Drilling and Dibbling allow straight row planting that ensures optimum plant population and can use a hoe for weeding. Straight row planting can be achieved by using a planting rope or using line markers.



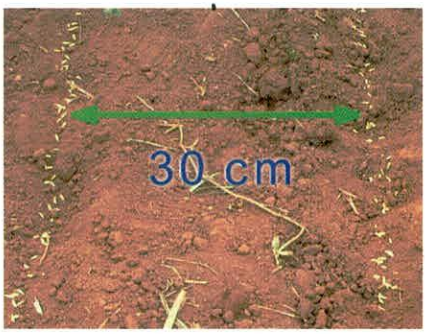
Drill



Dibble



Framer's practice (drill)



Sow 50–60 seeds for 1m

Plant spacing and seeding rate

Method	Plant spacing	hills /m²	seed / hill	Seeding rate / ha	Seeding rate /acre
Drill	30 cm x 1.5 cm	222	1 seed / hill	60 kg	24 kg
Dibble	30 cm x 12.5 cm	26.7	7 seeds / hill	50 kg	20 kg

Germination of upland rice



3 days after sowing



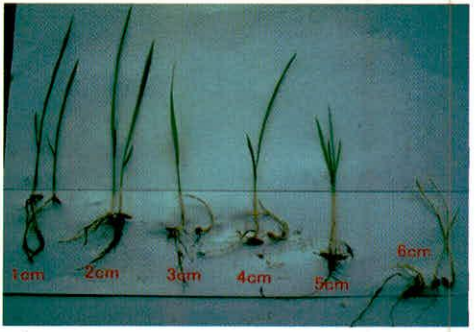
4 days after sowing



5 days after sowing

PLANTING DEPTH

It is recommended that upland rice be planted at a depth of between 2 - 4 cm. Planting at a depth of more than 4 cm has been observed to result in low germination, delayed emergence, delayed maturity and thus low yields.



Intercropping

Upland rice can be intercropping with maize, banana and coffee.



with coffee



with maize

REFILLING OF MISSING HILLS

Missing hills lead to low yield. It is therefore advisable that you set a small nursery bed beside the mother garden to raise seedlings for purposes of refilling gaps. Gap filling should be done 15-20 days after sowing and it's important to water the seedlings after transplanting.

FERTILIZATION

Rice should not be continuously grown on the same fields, it should be rotated with other crops to conserve soil fertility. Composted organic material such as rice straw and animal manure can be added to the soil to supplement soil fertility.

Fertilizer rates and regimes

55-23-0 NPK kg / ha *DAG (Days After Germination)

Fertilizer	15-20 DAG	55-65 DAG
DAP(18-46-0)	50 kg / ha (20 kg / acre)	0
Urea(46-0-0)	50 kg / ha (20 kg / acre)	50 kg / ha (20 kg / acre)

WEED CONTROL IN UPLAND RICE FIELDS

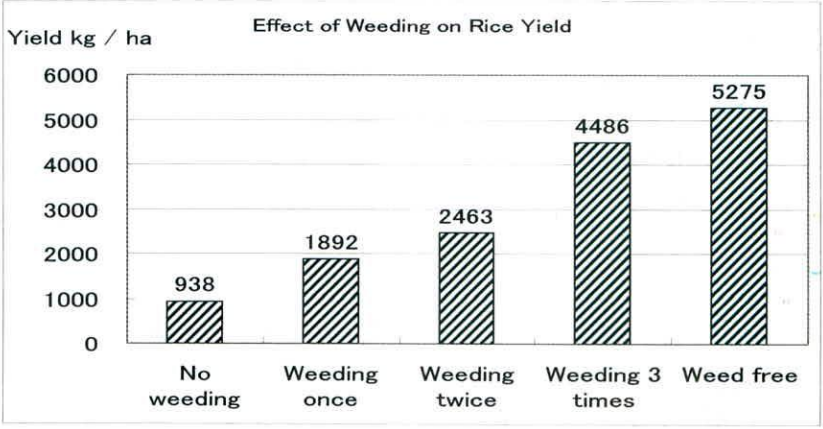
Weeding must be done at least twice (2 times) at 3 and 6 weeks after germination either by hand or hoe.

Weeds should be removed before they produce seeds.









INSECT PESTS OF UPLAND RICE

Stalked-eyed flies *(Diopsis thoracica)*

The larvae bore and feed on plant tissue inside the rice stem causing dead heart.



larvae



Dead heart



adult

Stem borers (*Pyralidae*)

The larvae bore through the stem and eat up the plant tissue resulting in a condition called dead heart and / or white head.







Termites

Termites eat and cut the stem of rice plants. Severe damage is experienced in dry soils.

Stink bug and Rice bug

The bugs stay on the panicle and suck the milky juice in young panicles causing staining of the grains hence lowering grain quality.



Stink bug



Rice bug



Mealybug



Rice Weevil
(storage insect)



Note: Usually insect damage does not necessitate chemical control since it does not reduce yields significantly.

DISEASES OF UPLAND RICE

Rice Blast (*Magnaporthe grisea)*

It is one of the most destructive of all the fungal diseases of rice. The fungus produces spots or lesions on leaves, nodes, panicles and grains. The spots are usually elongated and pointed at each end. Damage is often characterized by 50% reduction of yield.

Control is by planting resistant varieties like NERICA 1, 4 and 10, and avoiding excessive nitrogen application.





leaf blast



neck blast

HARVESTING

The stem of the rice is cut close to the ground by serrated sickles. This method of harvesting is much faster than harvesting by panicle using a knife. Harvesting should be done when 80-85% of the grains are straw coloured and the grains in the lower part of the panicle are in the hard dough stage.

RATOON CROP

After harvest, rice plant produce new shoot and panicle.
About 1 - 2 t / ha can be harvested within 60 days after harvest.
Harvesting height of rice plant (stubble) should be 15-25 cm.



First Crop (120 days)



Ratoon crop (50-60 days)

THRESHING

Threshing can be done by beating with sticks against a log or using thresher.
However, threshing by beating increases the chances of broken grains at milling.

Two types of thresher are available in Kampala.





DRYING

Open air drying under the hot sun heat is widely practiced in the tropics. Preferably drying should be done on a tarpaulin or a clean drying floor free of stones. The rice should be 4 - 5 cm thick and needs to be turned over 30-60 minutes to allow equal exposure to the sun heat. Its important to monitor moisture reductions, less than 3% reductions are recommended per day.

DRY SLOWLY !

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