Lowland rice briefing sheet

How to improve lowland rice productivity

How to be a successful rice farmer

- Using improved seeds, fertilizer, and organic matter **together** and combining with good agricultural practices will considerably increase a rice growers' yield or harvest. It will increase the quality of the crop, which will translate into better livelihoods and more cash.
- Effective fertilizer use means – the **right** fertilizer, applied at the right **rate**, at the right **time** and at the right **place.**
- If a farmer follows this advice they can see their yield increase to 20-25 bags per acre of high quality, **marketable** rice.

For lowland rice the farmer needs

- The most suitable soils are clay or loam soils with high soil **organic matter** - indicated by dark colour
    - It retains moisture – if you pick up a handful of moist soil and create a ball – it will keep its shape. If this doesn't happen, your soil is probably not suitable for lowland rice. But you may be able to plant upland rice.
    - The pH should be **5.5-6.5** at planting.
- The fields that are **almost flat**.
- Reliable rainfall – that means **regular rainfall** throughout the growing season.

How to prepare land for growing rice

- Farmers should remove the large stones, tree branches and logs from the fields.
- It is really important that farmers **do not allow burning** on their fields because it leads to loss of organic matter & nutrients, changes the soil structure which makes it more likely to blow away – so erosion is easier. Fire also kills the worms and other organisms that work for the farmer – killing the worms reduces the soil fertility.
- Soil that is burnt has low organic matter and will produce much lower yields of rice.

When is the best time to plough?

- Late May to early June is the best time for ploughing.
- If there is a gentle slope – the ploughing should go across the slope not up and down. This helps to avoid erosion.

What other field preparation is needed?

Make bunds around the field to trap water in the field. Rice is a water-loving plant.

What is organic matter and why is it necessary to add it?

- Good rice production is helped by the addition of **organic matter.**
- There is good compost available from agro-dealers.
- One 50 kg bag of compost is GHC6 – we recommend 20 bags (1 tonne) per acre. Most farmers who apply compost at this stage do not apply mineral fertilizer at planting.
- You must not re-plough after applying compost.

Rice needs to have flat fields – how is this achieved?

Some farmers use mechanical harrowing – when this is not available manual hoeing can break up the soil and level.

How does the farmer choose the seed to plant?

- **Good seed** is essential for growing good rice. You cannot grow high quality rice from saved seed – you need improved, certified seeds.
- Contact your agro-dealer and ask them to get you seed. If you can't get the variety you need consider bulk purchasing through your farmer-based organizations.

How does the farmer choose the right variety for planting in a deep valley?

If you are a farmer in a deep valley you have two choices of rice varieties: **Katanga** or **Tox3107** that both take long to mature - 145 days in normal growing conditions.

What about varieties for lowland planting outside of a deep valley?

- There are three other excellent varieties farmers should consider:
    - **GR 18** and **Nabogu** – mature in around 130 days.
    - **Gbewaa** matures in around 115 days – so can be planted a little later if necessary.
- Buying good seed is an essential part of growing quality rice.

How much seed will be needed?

- If you are dibbling at a rate of 3-5 seed per hill you will need 20 kg of seed per acre. If you are drilling you may need a little more – so the extra labour cost is offset by the saving in the cost of the seed.
- If broadcasting, you will need 40-50 kg per acre.

What are the essential steps to plant rice for the best results?

- To give your seed a good start – you should soak them in water overnight – this is called **priming**.
- You need a big bowl half filled with water and pour in your seed that you intend to plant the next day.
- The next day pour off the water – dry the seeds for an hour under a shade and then get them planted within 24 hours – otherwise the seeds will start to germinate and they will be of no use.
- At the same time as soaking the seeds – it is possible to add a seed treatment which your input dealer will be able to supply. This will be a sachet of powder that you add to the water. Seed treatment helps to control pests and prevent losses. When you add a seed treatment – make sure that you dispose of the waste carefully and not into a water supply.

What is the advantage of planting in rows?

- Planting in rows gives the maximum yield in your field.
- It also makes it easier to perform all of the management practices of weeding, adding fertilizer, rouging (removing any plants which are not the right variety and show obviously different characteristics) and harvesting.
- So the time you invest now will be paid back in the future.

How is planting in rows done?

- Use a guide line – and tie knots every 20 cm – about a *hangli* in length (*hangli* is the length of the adult palm from middle finger to thumb).
- The space between rows is also 20 cm – so you should have straight lines along your rows and columns.
- If you are using planting holes you need to use a stick to dibble holes ready for planting. Around **3-5 seeds are planted in each hole**. This allows for some thinning of the rice seeds later on, which will be used for gap filling. This is done around 2 weeks after emergence.
- Many farmers are now drilling using a rope, which is pulled through the soil to create a drill. Here the aim is to plant in a continuous row. This may use a bit more seed but can be done much more quickly. You also do not need to thin using this system.

What is the latest date I can plant?

Most varieties need to be planted by 15 July. One exception is a variety called *Digang*, which matures in only 110 days – so it is more forgiving. This can be planted up until the end of July.

How do I control the weeds?

- Spray with pre-emergence weedicide immediately after planting the seed - or you can spray a day or two after planting.
- Your agro-dealer can help you to find a suitable product.
- You must spray on moist soil or early in the morning – because the seed needs moisture to absorb the herbicide.
- If you don't apply pre-emergence herbicide you must weed two weeks after the seeds emerge to stop the weeds from competing with the rice for nutrients. Make sure the weeds are left on the field – they are useful organic matter and can feed the soil. To make sure the weeds don't re-grow you must expose the roots to the sun or tie weed into a knot.
- Another option for weed control is early application of post-emergence herbicide – this must be applied when the weeds have reached the 2/3 leaf stage.

Best fertilizer management practices

- The first fertilizer is an application of NPK. This should be done 3 weeks after planting – and when the soil is moist. The fertilizer will easily dissolve into moist soil – if it is too dry it will be lost into the atmosphere.
    - The recommended application rate is 2 bags per acre. To help to get the application rate right you could use a Fanta/Coke bottle top (crown) as a measure. One heaped bottle crown of NPK should be placed in a hole between 4 plants.
- At 5-6 weeks after emergence, weed your field in order to apply second fertilizer.
- The second fertilizer application is done at 7 weeks after germination. Broadcast ½ a bag of Sulphate of Ammonia (Sulfan) or ¼ bag of Urea per acre. Urea should be handled with care so that it does not evaporate.
    - Repeat the same amounts of fertilizer at 9 weeks after germination. At 7 weeks after emergence, apply half a bag of Sulphate of ammonia (Sulfan) per acre, or quarter bag of urea per acre.
    - At 9 weeks apply the same quantities of fertilizer as above.

What other jobs are needed?

- It is important to check that the bunds are not broken.
- Remove any rice plant that does not look like the variety you planted – a process called **roguing** – this takes place from emergence to harvesting. This will ensure good quality rice.

When to harvest rice?

- Drain the field of water by breaking the bund 2 weeks after flowering.
- Harvest your rice 30 days after flowering, when 85% of the panicles turn brown (at 18- 22% grain moisture content).
- Thresh, within 4 days of harvest, on a tarpaulin to avoid mixing stones with the grains.
- **Don't burn** the straw after threshing – it adds organic matter to the soil, while farm animals feed on it during the dry season.
- To get a tarpaulin, get 5 poly sacks (size 5), spilt them open and sew them together.
- Bag and store your rice on pallets or a raised platform from the floor or ground.
- Bag your rice at 12% moisture content or less, to ensure that your rice doesn't grow mould.
- If you want to mill immediately after harvest, dry your rice to 14% moisture content.
- If moisture content of your rice is 12% or less, **parboil** before milling to avoid loss through grain breakage.

How many bags of rice should the farmer expect from the harvest?

A farmer using improved seeds, fertilizer, and organic matter **together** and combining with good agricultural practices should expect at least **20-25 bags per acre.**

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