

## Rice crop establishment



Fig 1. Rotavation



Fig 2. Ploughing



Fig 3. Laser  
levelling



Fig 4. Banding

### Important stages of rice cultivation

Rice cultivation involves a series of processes to achieve the desirable product.

The basic stages of cultivation include: Land preparation, Seed selection, Crop establishment, Water management, Nutrient management, Crop health management, Harvesting and Post harvest.

### Land Preparation

Proper land preparation, is achieved by following options; mechanical preparation – tractors, hydro tillers; ox plough, and manual. Paddy field leveling is critical for uniform flooding, weed control and uniform germination. Similarly, rainfed lowland and upland rice also require good land preparation.



Fig 5. Seedlings raised  
in trays



Fig 6. Climate  
smart  
seedlings  
production



Fig 7. Transplanting



Fig 8. Healthy direct  
seeded crop

### Seed selection methods:

The first step is winnowing, followed by physical sorting by removing debris manually or by seed sorter. Easy way is to put seeds in a container and put water to allow bad grains to float, then sieve. selection of quality seed have the capacity to;

- Improve yield by 5 – 20%
- Improve germination by more than 80%
- Increase resistance to disease and pest attacks
- Enhance crop uniformity
- Minimize pests, disease and weed infestation
- Maintain varietal purity thus attract better price.



Fig 10. Seedling in nursery



Fig 11. Transplanter



Fig 12. seeding



Fig 13. Seed



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## Rice crop establishment .... Continued

### Crop establishment

The two methods used are :

#### 1. **Transplanting**

The quality seeds is either soaked overnight or just sown in a well prepared nursery bed. Normally seed is broadcasted but the best way is to plant in a row.

For best field crop establishment, young healthy seedlings of 14-21 days should be used. The seedling crop should be well nourished and protected from pest and disease attack to prevent spreading diseases and pests from nursery to production field.

**Disadvantages:** In some instances the nursery maintenance is expensive. The yield are low due to poor & unhealthy seeds. It uses a lot of seeds. The operation costs are high due to nursery management and transplanting.

**Planting:** The spacing vary depending with variety and if row weeders are to be used, but generally 20cm between row and 15cm within row is used.

#### 2. **Direct seeding**

In direct seeding, either dry seed or pre-germinated seeds are sown by hand or a planter (machine) in a well prepared field/paddy at a spacing of 20cm between rows and 10-15cm within the row. Sometimes the seed is drilled. For row planting with a marked or unmarked string, yields are higher than broadcasted crop. For unmarked string, two sticks for inter and intra-row spacing can be used. Row planting minimizes competition and thus more vigorous growth that result into higher yields.



Fig 14. Seedling in



Fig 15. Healthy crop



Fig 16. Good seed bed



Fig 17. Mature crop

### Water and weed management

Sometimes the seeded field especially for direct seeding require immediate watering to initiate biological start date (BSD) immediately after planting if there is no rainfall. For more details on water, weed, nutrient management and harvesting please refer to the respective factsheets.

#### Crop care

The crop should be continuously scouted for any sign not consistent with healthy crop growth and consult the respective factsheets for diagnosis.

#### Bird scaring

At grain filling, the soft, medium & hard dough stage birds cause huge damage. The crop can be protected by bird netting, using scare crows or employing a guard. This activity increases the cost of rice production. Breeder are striving to develop varieties with erect flag leaf above the panicle to deter birds from parching and feeding on grains.

Factsheets for Rice Production, East Africa

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