

# Techniques for Improving and Developing Rice Varieties

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# Selecting seed from unpolished grains

## Dehusking unpolished grains by hand

- Steps:
1. Take around half a kilogram of unmilled seed of the desired variety.
  2. Winnow and clean the seeds to get rid of any unfilled ones.
  3. Dehusk the rice grains by hand by starting with the tail end of the seed in order not to destroy the seed germ.
  4. Choose unpolished grains that are perfect and follow the varietal characteristics, grains that are smooth and shiny, are not diseased, are not *chalky*, approximately 100 seeds.
  5. Plant these selected seeds.



Dehusk the rice grains by hand

## Dehusking rice grains with a machine

### Steps:

1. Prepare the desired amount of unmilled rice, around 1-2 kilograms.
2. Winnow the rice until it is clean.
3. Mill the rice in a brown rice mill (i.e. without polishing)
4. Winnow the milled brown rice once more.
5. Select the unpolished grains that are perfect and follow the varietal characteristics, grains that are smooth and shiny, are not diseased, are not *chalky*, to the desired amount.
6. Plant these selected seeds.



The brown rice mill



Rice seeds before selecting

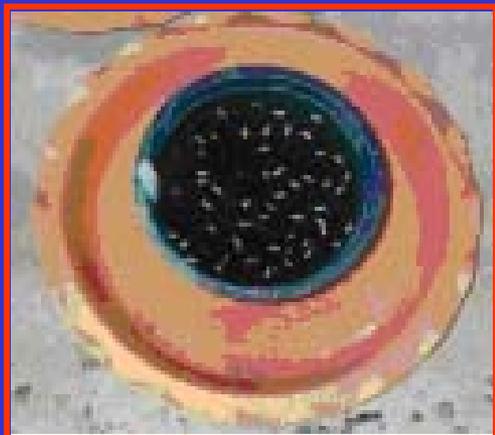


Rice seeds after selecting

# Growing seedlings in a basin (like making bean sprouts)

## Steps

1. Fill a container  $\frac{3}{4}$  full with charred rice husks (or sand) to a uniform depth.
2. Spread the selected seeds evenly.
3. Cover the seeds with a layer of charred rice husks (or sand) around 1-2 cm thick. (1 cm. with sand)
4. Sprinkle water into the basin until everything is moist.
5. Place the container in a tray. Add water to the tray to keep ants out of the basin.
6. Be diligent in maintaining moisture. In 3 days, the seeds will have sprouted roots.
7. After 10-12 days plant the sprouted seeds in the field according to principles of System of Rice Intensification (SRI).



Brown rice seed in charred rice husk



Brown rice seed in sand



Germinating seeds

## Growing seedlings in the field

- Steps:**
1. Prepare the seedling nursery as normal. Level the mud so it is a uniform depth.
  2. Spread charred rice husks (or sand) to a depth of around 1" (1 cm. with sand) all over the field.
  3. Broadcast the selected brown rice seeds all over the nursery.
  4. Spread charred rice husks (or sand) once more, to a depth of around 1 cm. (1/2 cm. With sand)
  5. Water the field until all the soil is moist.
  6. Make a moat all around the nursery to prevent damage by ants.
  7. Once the seedlings are around 25 days old, they are transplanted.



Mud preparation



Spreading charred rice husks  
(sand)



Broadcasting the rice seed



Rice seedlings at 7 days old

# Rice Breeding



# Step in Breeding Rice

1. Collect varieties.  
Test plant them



2. Select and test plant varieties  
(2-3 yrs)



3. Set objectives and goals for  
breeding



4. Select and plant parent lines



5. Clip the stamens



6. Breeding the rice varieties



7. Plant for variety selection  
6-8 generations (3-4 yrs)



8. Do a variety comparison  
trail



9. Certify the variety



10. Multiply the variety

# Rice varieties accumulated for testing and the selected parent lines



# Select and plant parent lines



## Setting the breeding objectives or goals

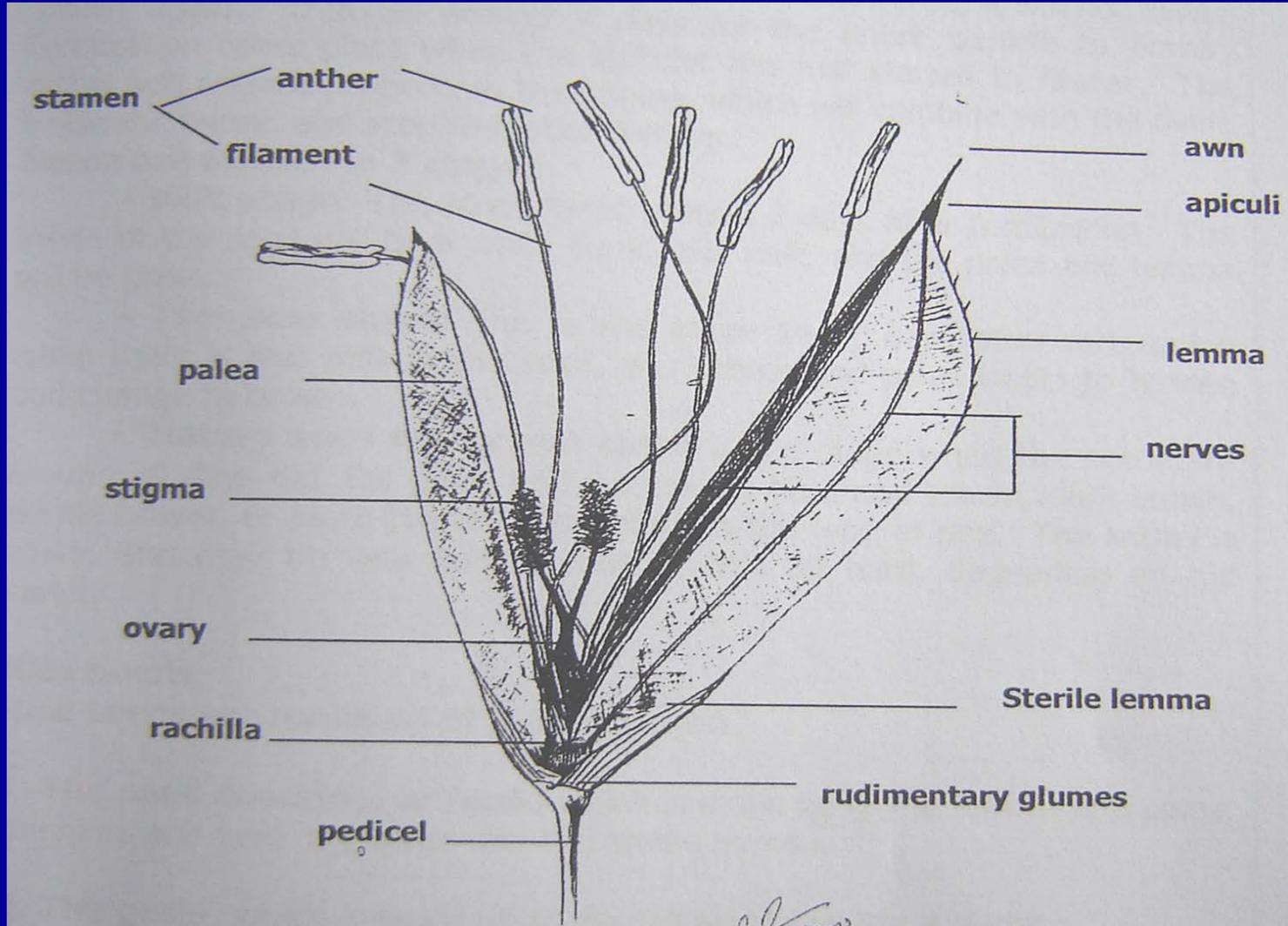
This means formulating what is needed to make an ideal or dream- variety. The basic criteria for setting objectives are that the variety respond to the production system, be appropriate for the planting location, be high yielding, have high quality seed, have good cooking and eating quality, be resistant to disease and insects, and be able to be planted in a n y s e a s o n .



# Parent lines planted for breeding



# Flower of rice plant



# Preparing the tools



# Preparing the maternal line plants



# Clip the stamens



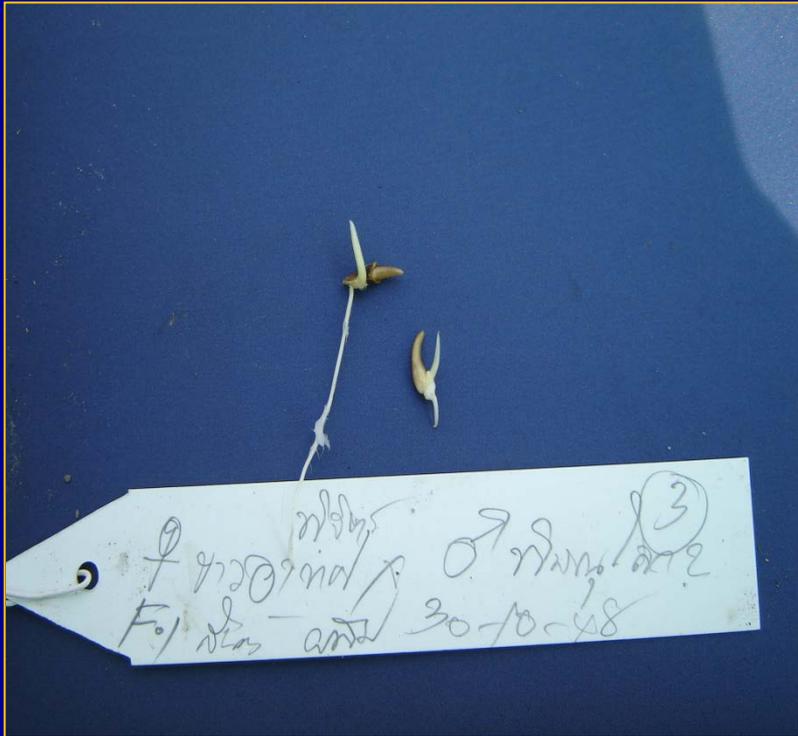


# Fertilization

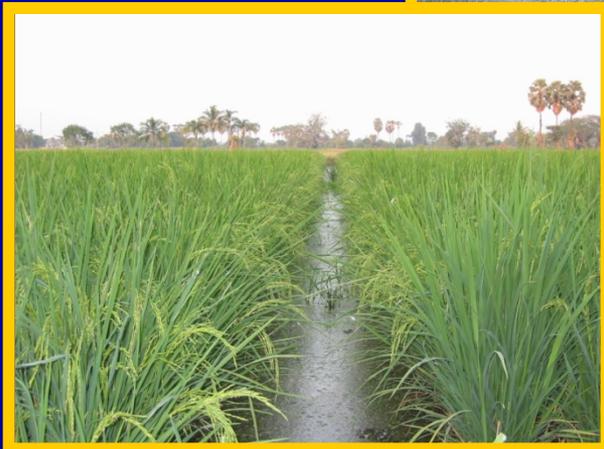




# Selecting offspring from the cross



# Plant for variety selection 6-8 generation



# Do a variety comparison trail





# Multiply the variety













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