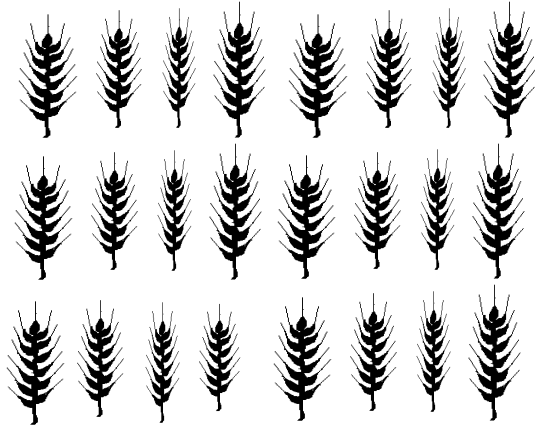


# Maintenance Breeding in Barley



**Email: [r.verma@cigar.org](mailto:r.verma@cigar.org)**

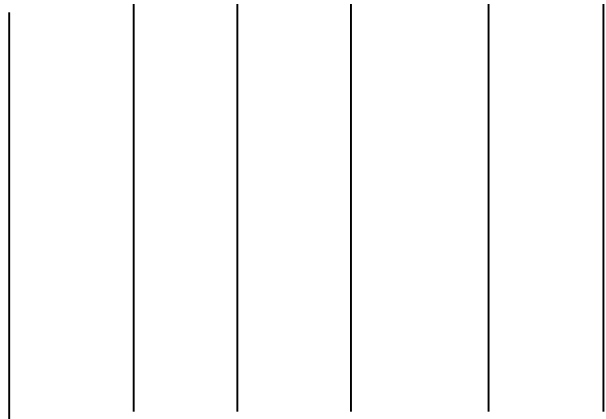
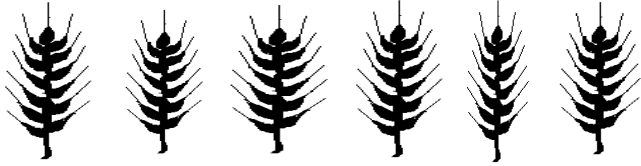
# Maintenance of varietal Purity 1



## First Year (Ear-head collection)

1. Grow seed sample from original stock/source in space planting using dibbling method.
2. Select 300-500 true to type ear-heads.
3. Thresh selected ear-heads separately.
4. Reject ear-head produce on the basis of grain characters.

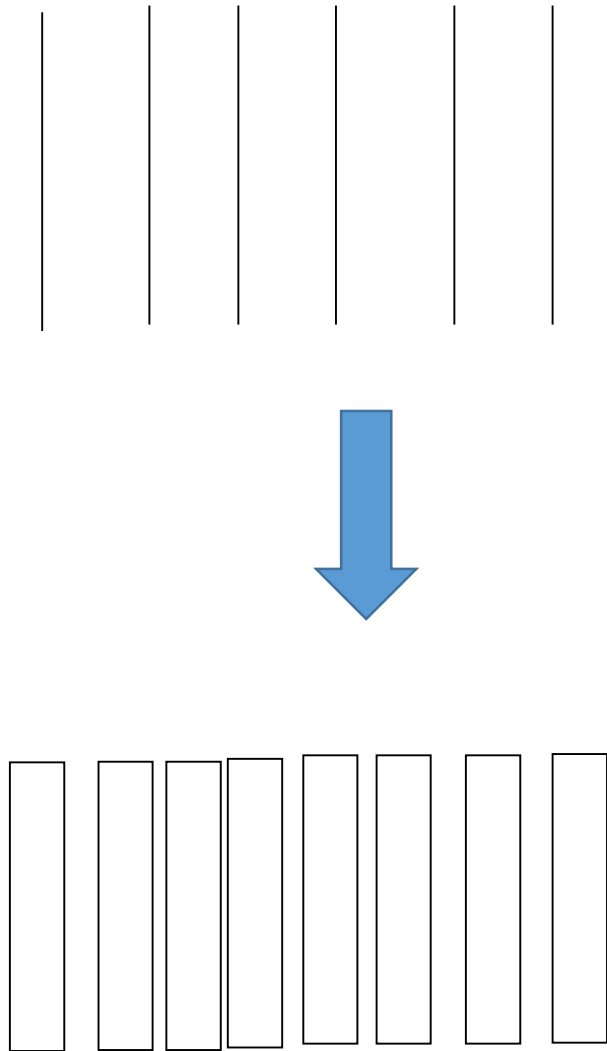
# Nucleus and breeder seed production in barley



## Second Year (Nucleus Seed Stage-I)

- Grow ear-head progenies using dibbling method.
- Take critical observations at different growth stages of the crop.
- Rejection of progenies showing variation.
- Keep proper records of progenies harvested.
- Bulk separately.

# Nucleus and breeder seed production in barley

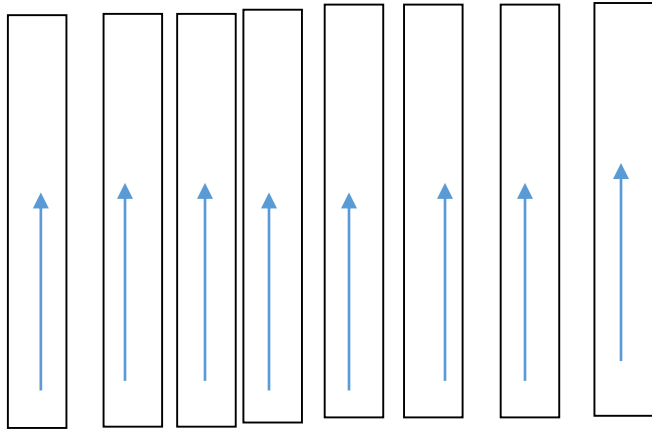


## Third Year

### (Nucleus Seed Stage-II)

- Grow NSS-I harvest plots separately.
- Observe each plot critically for any type of deviation at different growth stages.
- Discard plots showing variation and thresh selected plots individually.
- Reject plot harvest on the basis of grain characters.
- Bulk retained plots produce as breeder seed stock or nucleus seed.

# Nucleus and breeder seed production in barley



## Fourth Year (Breeder Seed)

- Sow breeder seed plots in one direction with seed drill.
- Leave one row unsown after every 8th row.
- Follow rouging norms in removing the off type plants.
- Harvest the seed plots with utmost care to avoid any mechanical mixture.
- Keep proper records of each lot separately.



# Description Barley

**Family Poaceae (Gramineae) Tribe Triticeae**



*H. vulgare cv. distichon*



*H. vulgare cv. Vulgare hexastichon*

**Wild**

*H. spontaneum*

*H bulbosum*

# Barley Descriptors

## Growth Habit

Prostrate

Semi prostrate

Erect

## Growth Class

Winter

Semi winter

Spring





# Barley Descriptors

## Pigmentation

### Stem

Absent

Basal only

Pigmented



### Auricle

Absent, Light pigmented

Pigmented

### Upper node

Absent, LP, Pigmented

# Barley Descriptors

## Plant Height

**Dwarf = < 75 cm**

**Semi dwarf = 75-100 cm**

**Tall = > 100cm**



# Barley Descriptors

## Maturity Group

### Days to Flowering

**E= <75      M= 75-95,      L = > 95**

### Days to Maturity

**E= <120      M= 120-140,      L = > 140**

# Barley Descriptors

## Leaf Attitude

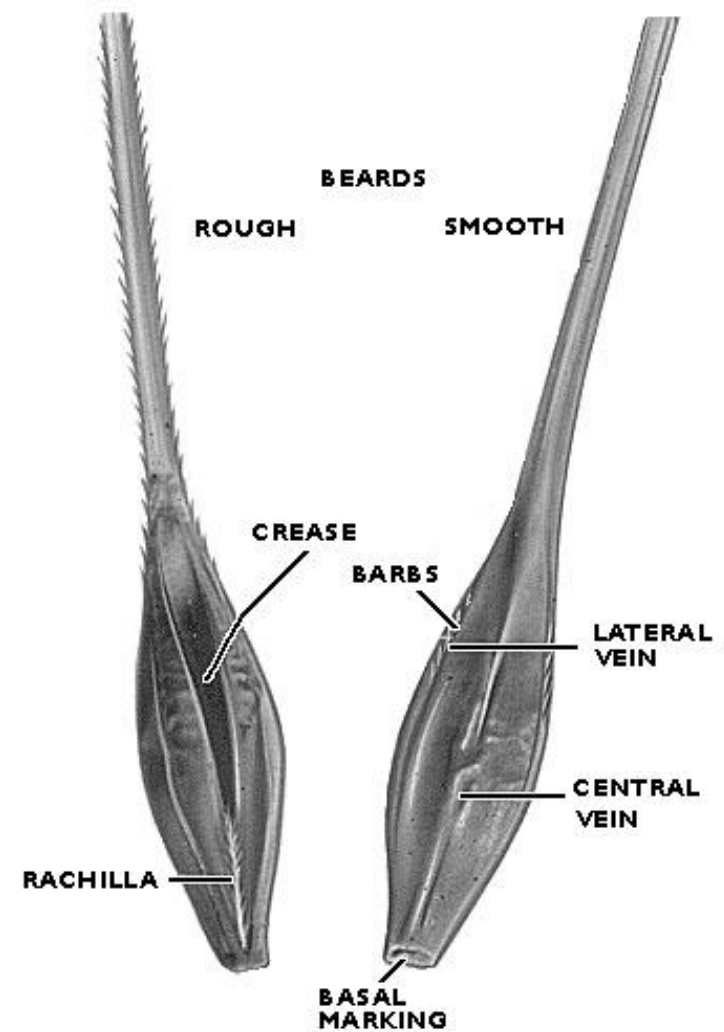
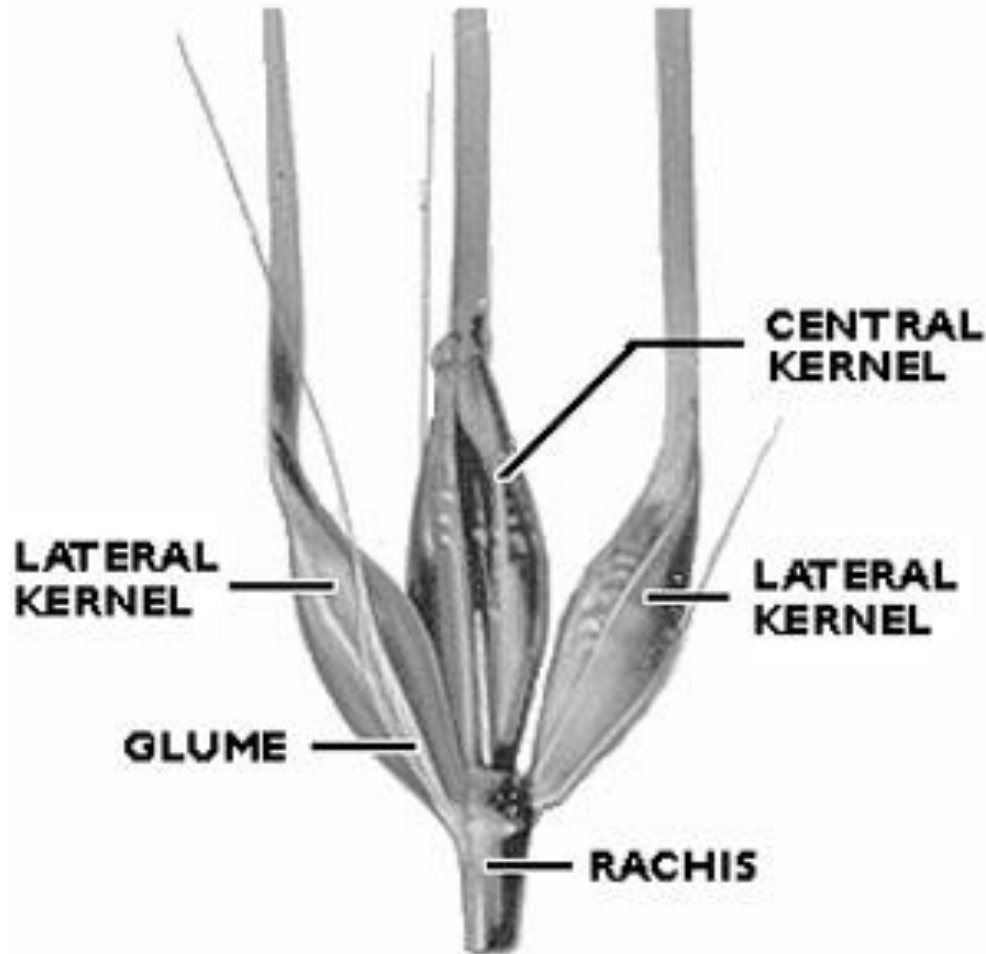
Erect

Drooping



# Barley Descriptors

## Spikelet Parts



# Barley Descriptors

**Spike type**

**Two Row**



**Six Row**

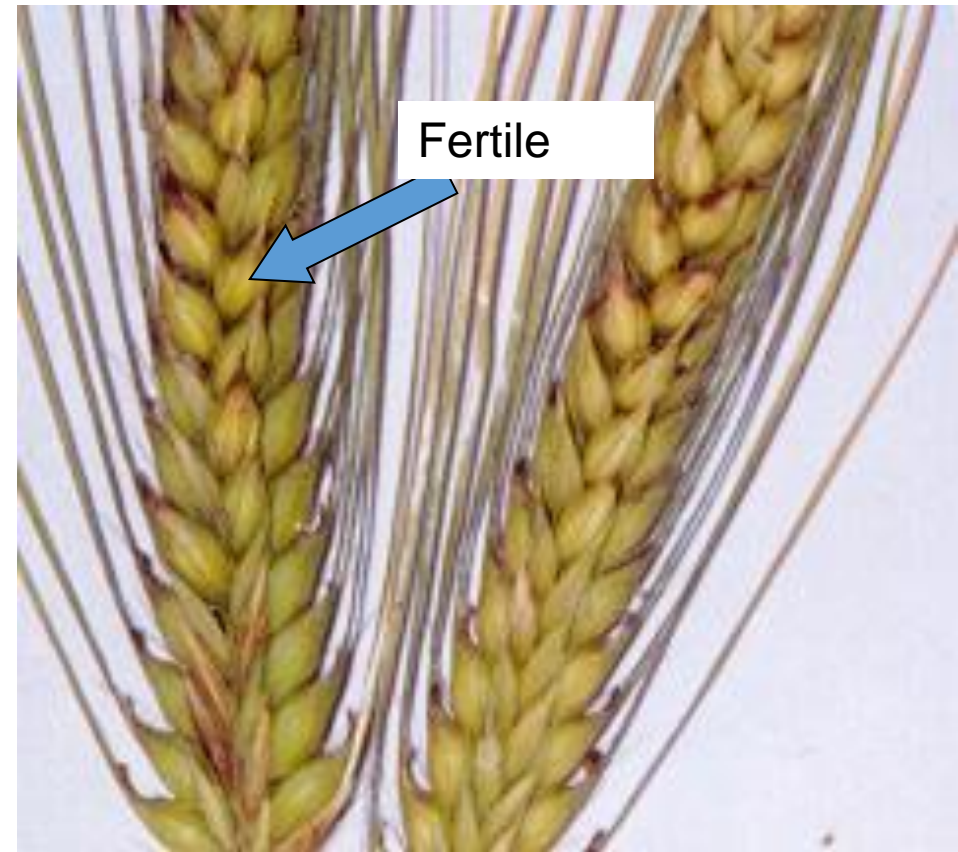
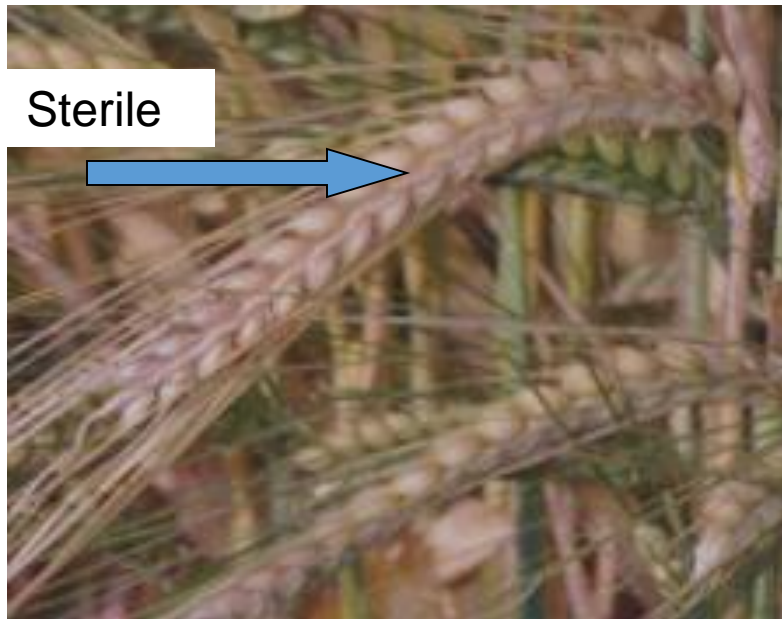


# Barley Descriptors

**Spike type**

**Two Row**

**Lateral Florets**



# Barley Descriptors

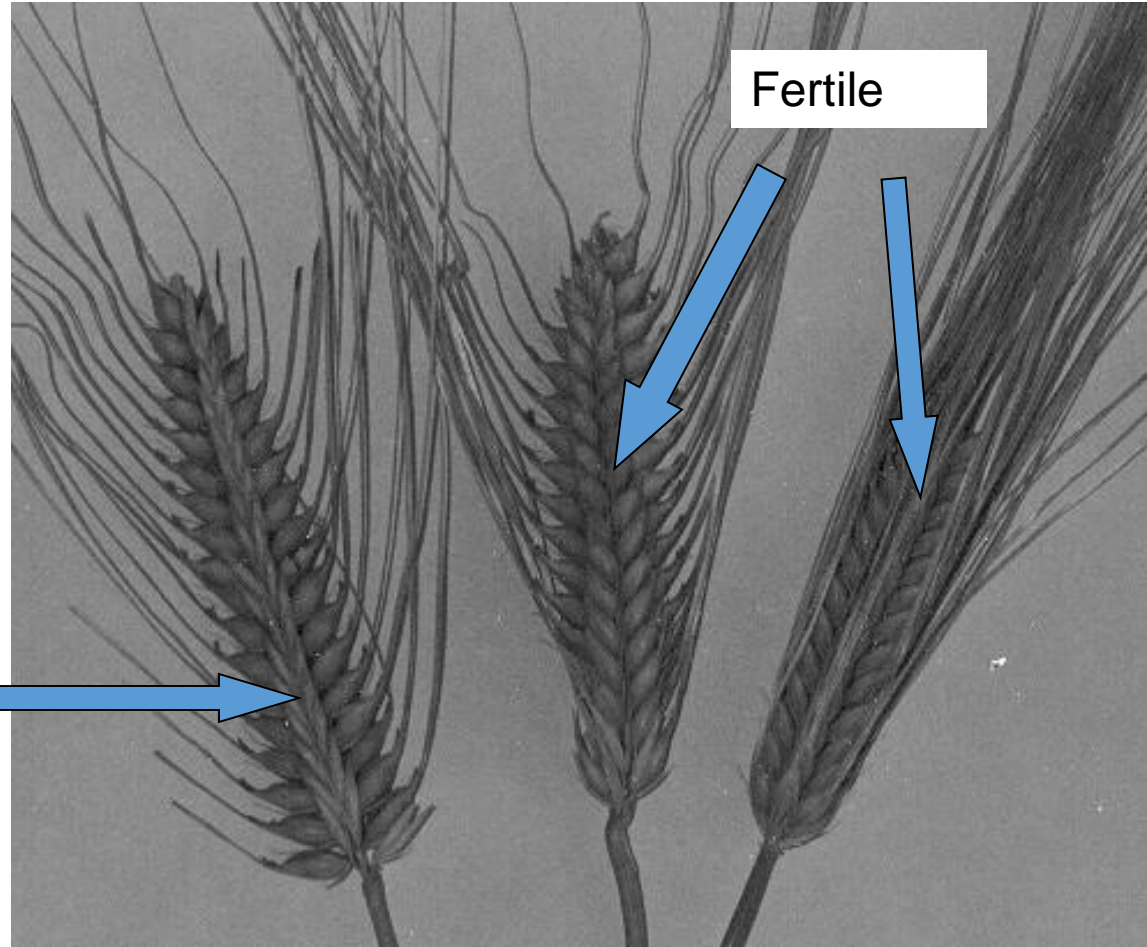
**Spike type**

**Two Row**

**Lateral Florets**

Sterile

Fertile





# Barley Descriptors

## Spike density

### Lax Spike

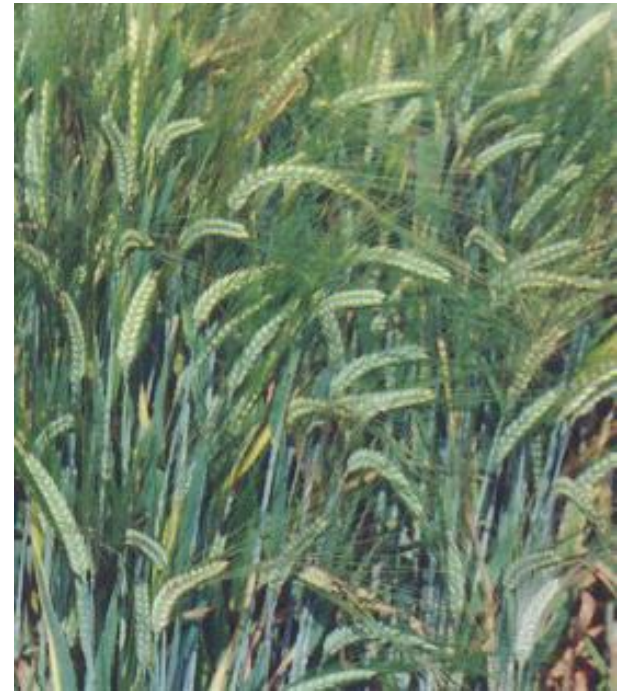


### Dense Spike

# Barley Descriptors

## Spike Waxiness

**Waxy**



**Non Waxy**



# Barley Descriptors

## Leaf Sheath

**Waxy**



**Non Waxy**



# Barley Descriptors

## Spike variations

Erect spikes



Drooping spikes



# Barley Descriptors

## Spike variations

### Short Spike



Long Spike

# Barley Descriptors

## Spike variations



Awned



Spikes with  
lateral awns



Awnless / hooded

# Barley Descriptors

## Spike variations

### Awn pigmentation



Green Awn



Pigmented Awn

# Barley Descriptors

## Spike variations

Tip sterility



Basal Sterility





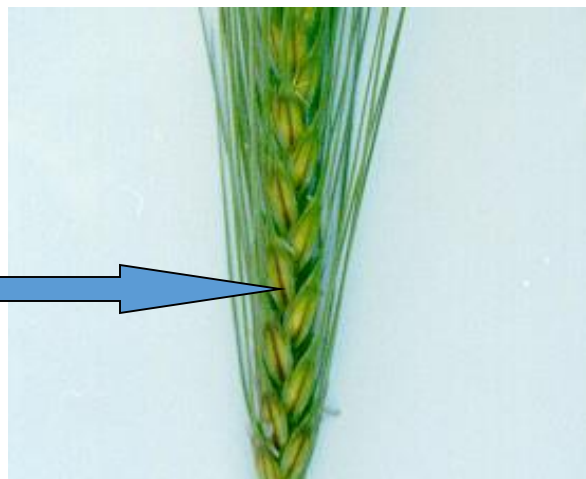
# Barley Descriptors

## Kernel Pigmentation

Dark Pigmented



Nerve pigmented



Non Pigmented



# Barley Descriptors

## Kernel Covering

Hulled

Partly dehulled

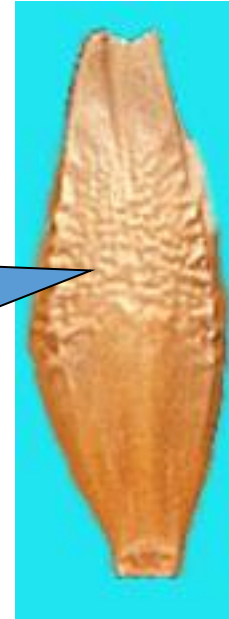
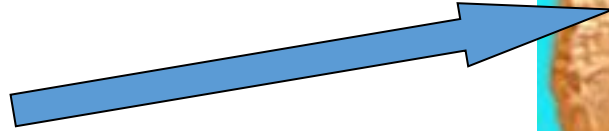
Huskless



# Barley Descriptors

## Kernel Surface

**Wrinkled**



**Smooth**



# Barley Descriptors

## Seed Colour

Amber



Yellow



Purple



Black



# Barley Descriptors

## Seed Shape

Oval



Intermediate



Slender



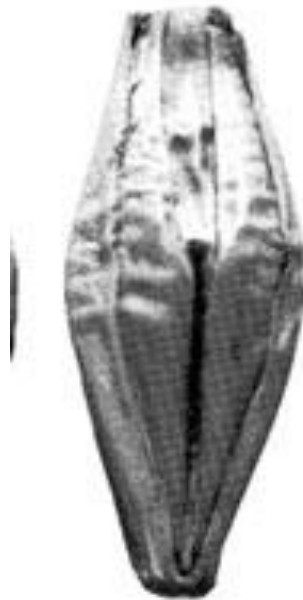
# Barley Descriptors

## Crease width

Wide



Intermediate

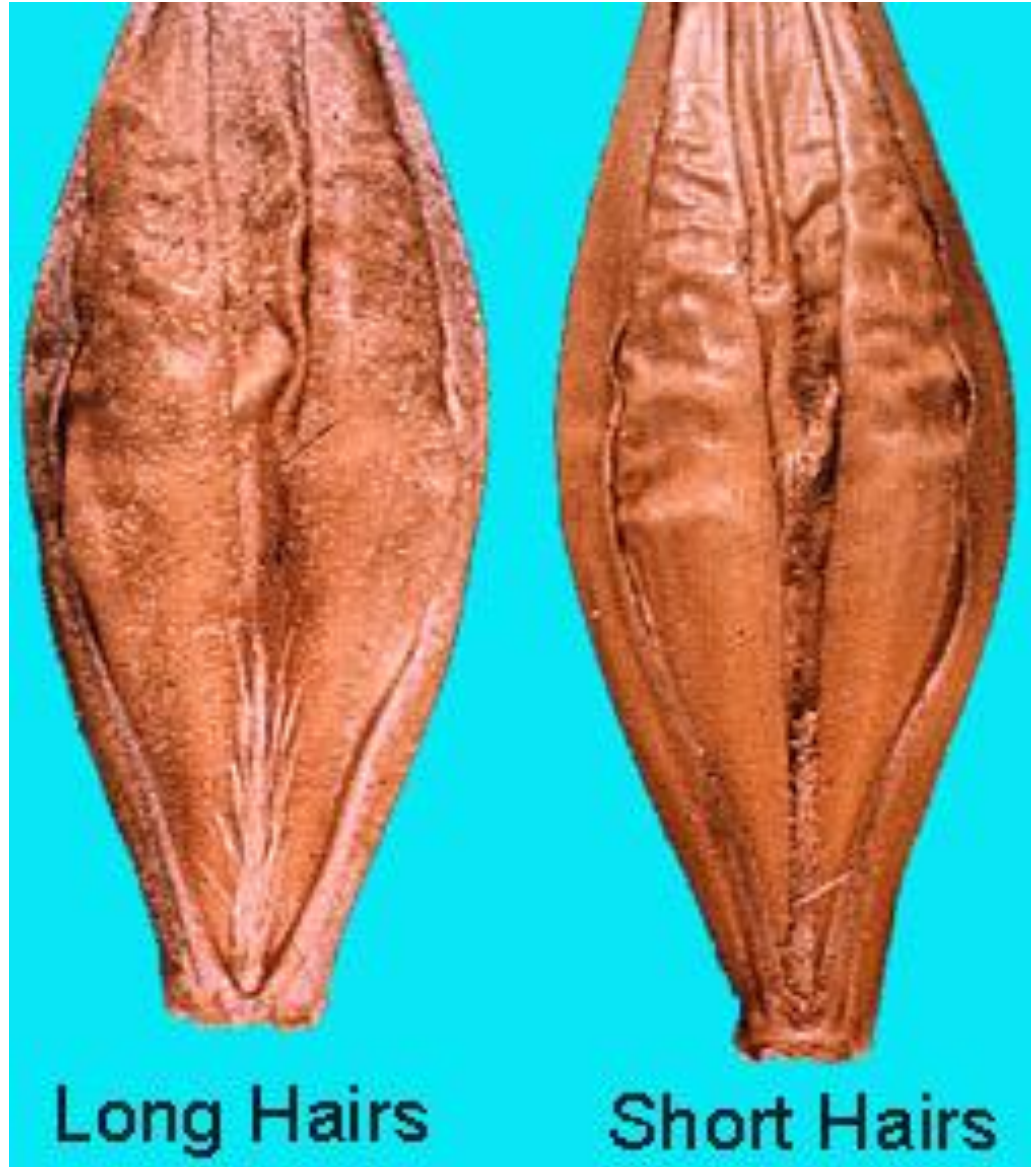


Narrow



# Barley Descriptors

## Rachilla hairs



# Barley Descriptors

## Disease / Pest Reactions



**Covered smut**



**Yellow rust**



# Barley Descriptors

## Disease / Pest Reactions



Leaf  
stripe



Leaf Blights

# Barley Descriptors

## Disease /

## Pest Reactions



Aphid