



**BARLEY**

**BARL**

*Hordeum vulgare L.*

**FAMILY:** POACEAE

**URDU:** JOW

# BARLEY

- ♣ **ANNUAL**
- ♣ **MONOCOT**
- ♣ **RABI CROP**
- ♣ **DETERMINATE**
- ♣ **95% MORE ENERGY AS COMPARED TO  
MAIZE FODDER**

# IMPORTANT

## F

- ♣ **LESS IMPORTANT THAN WHEAT**
- ♣ **FOOD , SATU , ALCOHOL , BREAD**
- ♣ **RICH IN ENZYMEZ**
- ♣ **BALLANCED IN FAT & ENERGY**
- ♣ **HIGH IN FIBER & PROTIEN**
- ♣ **LOW ACID CONTENT**

# ORIGIN

- ♣ **DEFINITE ORIGIN NOT KNOWN**
- ♣ **WESTERN PART OF IRAN (ZAGROS MOUNTAINS)**
- ♣ **WESTERN PARTS OF PAKISTAN**

# **ADAPTATION**

- ♣ WIDE RANGE OF ADAPTABILITY**
- ♣ DROUGHT RESISTANT**
- ♣ DISEASE RESISTANT**
- ♣ RAINFED AREAS**
- ♣ SUSCEPTIBLE TO WATER LOGGING**

# **PRODUCTION**

## **PAKISTAN 2015**

<b>Area</b>	<b>84,100 ha</b>
<b>Production</b>	<b>71,400 tones</b>
<b>yield</b>	<b>0.85 t ha<sup>-1</sup></b>

**Pakistan not in top 20 barley producers**

# **MORPHOLOG**

## **v**

- ❖ **HYPOGEAL MODE OF GERMINATION**
- ❖ **ADVENTITIOUS ROOT SYSTEM**
- ❖ **100 CM NORMAL (UP TO 400 CM) ROOT  
DEPTH**



# INFLORESCENCE

- ♣ **SPIKE**
- ♣ **AWNED**
- ♣ **SPIKELETS ALWAYS ARRANGED**
- ♣ **TWO PARTS (LEMMA & PALEA)**
- ♣ **LEMMA (Hull) :outer covering containing awn**
- ♣ **PALEA (Husk) :beneath lemma and covers grain**



# SOIL

- ♣ **ALMOST ALL SOIL TYPES**
- ♣ **HEAVY TO LOAM TO SANDY**
- ♣ **CAN NOT BE GROWN IN WATERLOGGED SOILS**
- ♣ **SALT TOLERANT**

## **RAINFED**

♣ **EARLY SOWING 15 OCT. 31 OCT.**

♣ **MID SOWING NOV. – DEC.**

♣ **LATE SOWING TILL 15 JAN.**

## **IRRIGATED**

♣ **NOVEMBER (OPTIMUM)**

♣ **DECEMBER**

# BREEDING METHODS

- ⌘ **Bulk Method**
- ⌘ **Pedigree method**
- ⌘ **Mass Selection**
- ⌘ **Pure line selection**
- ⌘ **Back cross method**
- ⌘ **Single seed descent method**

# SEED RATE

♣ 70-80 Kg Ha<sup>-1</sup>

♣ METHOD

♣ PURITY

♣ GERMINATION PERCENTAGE

♣ VAREITY

# VARIETI

- ♣ **RATNA** (rainfed)
- ♣ **Azad (K.125)** (yellow rust)
- ♣ **Karan-201, 231 and 264** (Huskless)
- ♣ **C- 164** (long awns)

# **SELFFING**

- ① **Because it is highly self pollinated crop.**
- ② **Only 03% chances of crossing.**
- ③ **For selfing Simply cover the spike of desired plant with Butter paper bag.**

# CROSSING

## EMASCULATION:

- Plant selection
- Spike selection (stage) Cut spike 1/3<sup>rd</sup> from top
- Cut 1/3<sup>rd</sup> of floret Remove anthers Cover the spike
- Tagging for female plant



# POLLINATION

- ① **Selection of Male plant**
- ② **Cut 1/3<sup>rd</sup> of each floret**
- ③ **Place spike in sunlight for almost 5min**
- ④ **Shred pollens on emasculated spike**
- ⑤ **Tagging**