

Wheat (*Triticum aestivum*)

Cultivation Practices

- Land Preparation**

The Wheat crop requires a well pulverized but compact seed bed for good uniform germination. One deep ploughing followed by two harrowing and planking is desirable.

- Seed & Sowing**

➤ Treat the wheat seeds with bio-fertilizers (Azotobactor or PSB) @ 200g/10kg seeds.

High Hills > 1800m msl				
	Sowing Time	Seed rate	Seed Variety	Spacing
Rainfed Timely sown	First week of October	2 Kg/Nali	HPW-42, VL- 832, HS-365	20-25 cm
Mid Hills (1200-1800m msl)				
Rainfed Early sown	Upto 2 nd Week of October	2 Kg/Nali	VL-616, HS-277, VL-829	20-25 cm
Irrigated & Rainfed Timely sown	Second fortnight of October	2 Kg/Nali	VL-719, VL-738, 802, HD-2380	20-25 cm
Rainfed Late sown	Second fortnight of November	2.5 Kg/Nali	HS-420, VL-892	15-18cm
Lower Hills (600-1200m msl)				
Rainfed Timely sown	Second fortnight of October	2 Kg/Nali	PBW-179, PBW-299	20-25 Cm
Irrigated conditions Timely sown	Second fortnight of November	2 Kg/Nali	PBW-343, 502	20-25 Cm
Irrigated conditions Late sown	Second fortnight of December	2.5 Kg/Nali	PBW-373, Raj-3777, 3078	15-18cm

- **Depth of sowing:** Seed should be placed 5-6 cm deep below the soil where sufficient soil moisture is available for efficient germination.
- **Method of Sowing:** Line sowing is followed in wheat. The best method of sowing is with a seed drill or dropping seed with a Chonga attached to a deshi plough.
- **Nutrient Management:** Add 200-400Kg/ Nali well decomposed cow dung manure into the soil one week before sowing. The fertilizer application should normally be on the basis of soil test. In case the facility for soil testing is not available, fertilizer may be applied at the following rates:
 - **Nitrogen:**
 - **Irrigated conditions:** 2.5-3.0 Kg/Nali (more requirement due to leaching losses)
 - **Rain fed conditions:** 1.5-2.0 Kg/Nali
 - **Phosphorus:**

- **Irrigated conditions:** 0.8-1.2 Kg/Nali
- **Rain fed conditions:** 0.4-0.6 Kg/Nali
 - **Potash:** 0.4-0.6 Kg/Nali

Of the total nitrogen, 1/3rd is applied at the time of sowing, along with full doses of Phosphorus and Potassium, while the other 1/3rd during first irrigation and the last portion at spike initiation stage.

- **Irrigation:** Wheat crop generally requires watering 6 times for its optimum growth and yield. However, the frequency of watering may depend upon the availability of irrigation facilities.

The table below presents the timing of watering at different growing stages based on the frequency of watering. For example, in case of medium scarcity of water with irrigation facilities available for two times watering; the watering should take place at CRI (20-25 days) and Milking (100-105 days) stages.

No. of available irrigation	CRI (Crown Root Initiation) (20-25 days)	Tillering(40-45 days)	Jointing (60-65 days)	Flowering (80-85 days)	Milking(100-105 days)	Dough stages (120-125 days)
One watering	✓					
Two watering	✓				✓	
Three watering	✓		✓		✓	
Four watering	✓	✓		✓	✓	
Five watering	✓	✓	✓	✓	✓	
Six watering	✓	✓	✓	✓	✓	✓

- **Plant Protection Measures**

- **Weed control:** Wheat requires hoeing at two stages for controlling weeds.

First hoeing at 30-35 DAS (Days after sowing)

Second hoeing at 45-50 DAS.

- **Disease and Pest control**

Most of the varieties released today are resistant to nearly all the diseases but following control measures can be practiced for better protection.

Major diseases of Wheat and their control measures

Disease	Control measures
Loose smut	<ul style="list-style-type: none"> • Solar-heat or hot-water treatment of seed before sowing: Soak the seed in water in hot summer months in morning and keep in hot sun for 4-5

	hours for drying till afternoon. This is a good control measure to kill the fungus causing disease.
Ear-cockle	<ul style="list-style-type: none"> • Use clean seed, free from galls. • Deep ploughing in May- June to expose the nematode population to solar radiation. • Remove galls by sieving. • Pour the contaminated seeds in 2% salt solution. Galls will float on the surface. Decant them and wash the seeds in fresh water. Dry the seeds.

Major Pests of Wheat and their control measures

Pest	Control measures
Stem-borer	In the initial stage, pull out and destroy dead-heart.
Gujhia weevil	Plough the fields in summer to expose and kill the pupae.
Rodents	<ul style="list-style-type: none"> • Use indigenous rat traps. • Affix a bird percher of 5 feet height to attract bio-control agent viz: owl during night time. After flowering bird percher should be avoided. • Mix 1 g Zinc sulphide +1 ml mustard oil+ 80-100g wheat flour. Put this mixture in holes of rats and close holes.

- **Harvesting & Threshing**

The crop is harvested when the grains become hard and the straw becomes yellow, dry and brittle. Threshing is generally done by various types of threshers or manually at small scale. Wheat grains should be dried properly to avoid the attack of pests.

- **Yield:** 60-80Kg/Nali

- **Storage**

The grain should be thoroughly dried before storage. Grains with less than 10% moisture store well. The storage pits, bins or godowns should be moisture proof and should be fumigated to reduce the attack from stored grain pests.