

3. WHEAT (*Triticum aestivum*.)

CROP IMPROVEMENT

CLIMATE REQUIREMENT

T_Max°C	T_Min°C	Optimum °C	Rainfall mm	Altitude m MSL
31 - 34	3 - 4	20 - 25	600 - 900	up to 3300

Tropical and Sub tropical cool and dry climate. Grown during *rabi* season and has wide adaptability. Wheat can tolerate severe cold and snow and resume growth with the setting in warm weather in spring. Wheat needs cold and dry climate. Long day plant.

I. SEASON AND VARIETY

Suitable Districts

Plains & adjoining areas near to hills and hills in Theni, Dindigul, Karur, Coimbatore, Erode, Salem, Dharmapuri, Vellore, Thiruvannamalai and Kancheepuram Districts

Season

Ideal sowing time is 15th October to 1st week of November. Sowing must be completed within the first fortnight of November.

Variety : CO(W)1, CO(W) 2

2. Morphological Description of COW(W) 1

Particulars	CO (W) 1	COW (W) 2
Parentage	HD2646/HW2002A/CPAN30 57	Mutant of NP 200
Duration (days)	85-90	110
Grain yield (Kg /ha)	2364	4040
Stem	Erect	Erect to semi erect
Height (cm)	73 – 78	75-80 cm
Tillers	5-6	10-12
Days to 50% flowering	50 days	73 days
Ear size and shape	Fusiform ears	Long & slightly tapering
Grain colour	Amber	Raddish

1000 grains weight (g)	37	41
Special features	Non lodging, non shattering; tolerance to stem and leaf rust suitable for chappathi and bread making.	Resistant to rust, heat tolerant

3. SEED RATE: 100 kg/ha

CROP MANAGEMENT

1. FIELD PREPARATION

Plough twice with an iron plough and two to three times with cultivator and prepare the land to a fine tilth.

2. APPLICATION OF FYM OR COMPOST

Spread 12.5 t/ha of FYM or compost on the unploughed field and incorporate in the soil.

3. SEED TREATMENT WITH FUNGICIDES

Treat the seeds with Carbendazim or Thiram at 2 g/kg of seeds 24 hours before sowing

4. FORMING BEDS AND CHANNEL

Form beds size on 10 m² or 20 m². The irrigation channels are to be provided sufficiently.

5. APPLICATION OF FERTILIZERS

- (i) If soil test recommendation is not available, adopt a blanket recommendation of 80:40:40 NPK kg/ha. Apply 37.5 kg ZnSO₄, 40 kg S basally for soils having Zn and S deficiencies.
- (ii) Apply half of N and full dose of P₂ O₅ and K₂ O basally before sowing and incorporate in the sowing line.

Soil test crop response based integrated plant nutrition system (STCR- IPNS) recommendation may be adopted for prescribing fertilizer doses for specified yield targets. (ready reckoners are furnished)

Wheat - Hills(1)

Soil : Laterite (Ooty Series) FN = 7.60 T- 0.55 SN - 0.92 ON
 Target : 3.5 – 4.0 t ha⁻¹ FP₂O₅ = 3.59T - 0.26 SP - 0.54 OP
 FK₂O = 3.88T - 0.45SK - 0.51 OK

Initial soil test values (kg ha ⁻¹)			Yield target – 3.5 t ha ⁻¹			Yield target – 4.0 t ha ⁻¹		
			NPK (kg ha ⁻¹) + FYM @ 12.5 t ha ⁻¹ + <i>Azospirillum</i> @ 2 kg ha ⁻¹ + PSB @ 2 kg ha ⁻¹			NPK (kg ha ⁻¹) + FYM @ 12.5/t ha ⁻¹ + <i>Azospirillum</i> @ 2 kg ha ⁻¹ + PSB @ 2 kg ha ⁻¹		
SN	SP ^a	SK	FN	FP ₂ O ₅	FK ₂ O	FN	FP ₂ O ₅	FK ₂ O
200	200	175	96	49	27	134	67	45**
225	250	200	82	36	16	120	54	35
250	300	225	69	30*	15*	107	41	24
275	350	250	55	30*	15*	93	30*	15*
300	400	275	50*	30*	15*	79	30*	15*

* Maintenance dose ; ** Maximum dose; SP^a- Bray P

Wheat - Plains (2)

Soil : Mixed black calcareous (Perianaickenpalayam series) FN = 8.83 T- 0.71 SN- 0.88 ON
 Target : 3.5 – 4.0 t ha⁻¹ FP₂O₅ = 4.52T- 1.75 SP- 0.95 OP
 FK₂O = 6.05T - 0.20SK - 0.83 OK

Initial soil test values (kg ha ⁻¹)			Yield target – 3.5 t ha ⁻¹			Yield target – 4.0 t ha ⁻¹		
			NPK (kg ha ⁻¹) + FYM @ 12.5 t ha ⁻¹ + <i>Azospirillum</i> @ 2 kg ha ⁻¹ + PSB @ 2 kg ha ⁻¹			NPK (kg ha ⁻¹) + FYM @ 12.5 t ha ⁻¹ + <i>Azospirillum</i> @ 2 kg ha ⁻¹ + PSB @ 2 kg ha ⁻¹		
SN	SP	SK	FN	FP ₂ O ₅	FK ₂ O	FN	FP ₂ O ₅	FK ₂ O
200	14	300	112	90**	60**	150**	90**	60**
220	16	350	98	90**	60**	142	90**	60**
240	18	400	84	90**	60**	128	90**	60**
260	20	450	69	90**	60**	114	90**	60**
280	22	500	55	90**	60**	99	90**	60**

** Maximum dose

Note: FN, FP_2O_5 and K_2O are fertilizer N, P_2O_5 and K_2O in $kg\ ha^{-1}$, respectively; T is the yield target in $q\ ha^{-1}$; SN, SP and SK respectively are available N,P and K in $kg\ ha^{-1}$ and ON, OP and OK are the quantities of N, P and K supplied through organic manure in $kg\ ha^{-1}$.

6. SOWING

Draw the lines 20 cm apart and sow the seeds continuously after application of fertilizers to a depth of 5 cm. Avoid deep sowing.

7. WEED MANAGEMENT

- i. Spray PE Isoproturon 500 g/ha as pre-emergence spray on 3 DAS followed by one hand weeding on 35th DAS.
- ii. If herbicide is not applied, give two hand weedings on 20th and 35th DAS.

8. WATER MANAGEMENT

The crop requires 4 - 6 irrigations depending on the soil type and rainfall. Wheat crop requires minimum of 5 irrigations at the following critical stages.

- I = Immediately after sowing
- II = Crown root initiation : 15-20 DAS
- III = Active tillering stage : 35-40 DAS
- IV = Flowering stage : 50-55 DAS
- V = Grain filling stage : 70-75 DAS

Crown root initiation and flowering are the most critical stages. Water stagnation should be avoided at the time of germination.

9. TOP DRESSING

Apply remaining half of N at crown root initiation stage (15-20 DAS).

10. HARVESTING

Harvest the crop when the grains become hard and straw becomes dry and brittle. Thresh and winnow the grains. Use mechanical threshers to reduce the cost of threshing and winnowing.

CROP PROTECTION

Seed treatment: Treat the seed with any one of the following fungicides Carbendazim @ 2 g/kg of seed, Thiram @ 2 g/kg of seed or Carboxin @ 2 g/kg of seed.