**Trial Protocol**

**Trial name:** Performance of short duration (SDVs) and long duration varieties (LDVs) under different sowing schedules across ecologies.

**Implementation:** Jointly by CSISA team and 10 participating *Krishi Vigyan Kendra* (KVK) in Bihar and eastern Uttar Pradesh.

**Objective:**

Comparative study of yield performance of cultivars recommended for timely sowing (long duration varieties) with cultivars recommended for late sown (short duration varieties) conditions

**Treatments:**

|  |  |  |
| --- | --- | --- |
| **Treatment** | **Sowing schedule** | **Varieties** |
| **T1** | 01 to 10 November | Long duration varieties (V1) |
| **T2** | 11 to 20 November | Long duration varieties (V1) |
| **T3** | 21 to 30 November | Long duration varieties (V1) |
| Short duration varieties (V2) |
| **T4** | 01 to 15 December | Long duration varieties (V1) |
| Short duration varieties (V2) |
| **T5** | 16 to 31 December | Long duration varieties (V1) |
| Short duration varieties (V2) |

**V1 –** Preferably HD 2967 or similar

**V2 –** Preferably PBW 373 or similar

**Plot size:** Experimental plot should be ideally of one acre but in no case smaller than 0.5 acre in area.

**Replication:** Location sites will be treated as replications.

**Method of sowing:** Preferably zero till

**Irrigation:** 3 to 5 depending on winter rains

**Weed Management:** As per recommended under best management practice

**Crop-cut:** Identify three diagonal spots in the experimental plot. Two spots should be 10 m inside from two opposite corners of the plot. Third should be at the centre of the plot. Harvest 2m X 2m area from each of these three spots and record yield and related parameters as per data collection format.

**Data Collection Format**

1. Year of winter wheat crop (*Year*) \_\_\_\_\_\_\_\_\_\_
2. Name of participating farmer (*FarmerName*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Contact number of farmer (*MobileNumber*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Name of village where trial was conducted (*Village*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Name of block wherein village was located (*Block*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Name of district wherein village was located (*District*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Name of state wherein village was located (*State*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Latitude of experimental plot (*Latitude*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Longitude of experimental plot (*Longitude*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Land type of plot based on drainage class (*LandType*):
11. Lowland
12. Medium land
13. Upland
14. Soil type of plot based on texture (*SoilType*):
15. Heavy
16. Low
17. Medium
18. Crop grown on this plot before wheat trial (*PreviousCrop*):
19. Rice
20. Maize
21. Soybean
22. Fallow
23. Proportion of crop residue retained of previous crop in the experimental plot in percent (*PrevCropResidue*)
24. Method of wheat establishment in the experimental plot (*CropEstablishment*)
25. Zero tillage – ZT
26. Conventional tillage line sowing – CT-Line
27. Conventional tillage - CT
28. Wheat variety planted (*Variety*) ­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_
29. Amount of wheat seed used in kg/acre (*SeedRate*) \_\_\_\_\_\_\_\_\_
30. Date of planting wheat (*SowingDate*) \_\_\_\_\_\_\_\_\_\_\_\_
31. Wheat sowing window (*SowingSchedule*):
32. T1 – 01 to 10 November
33. T2 – 11 to 20 November
34. T3 – 21 to 30 November
35. T4 – 01 to 15 December
36. T5 – 16 to 31 December
37. Amount of DAP fertilizer applied as basal in kg/acre (*BasalDAP*) \_\_\_\_\_\_\_\_\_
38. Amount of NPK fertilizer applied as basal in kg/acre (*BasalNPK*) \_\_\_\_\_\_\_\_\_
39. Garde of NPK fertilizer used (*GradeNPK*) \_\_\_\_\_\_\_\_\_\_\_
40. Amount of MOP fertilizer applied as basal in kg/acre (*BasalMOP*) \_\_\_\_\_\_\_\_\_\_
41. Amount of ZnSO4 fertilizer applied as basal in kg/acre (*BasalZn*) \_\_\_\_\_\_\_\_\_\_
42. Amount of urea fertilizer applied at first top-dress in kg/acre (*Split1Urea*) \_\_\_\_\_\_
43. Amount of urea fertilizer applied at second top-dress in kg/acre (*Split2Urea*) \_\_\_\_
44. Amount of urea fertilizer applied at third top-dress in kg/acre (*Split3Urea*) \_\_\_\_\_\_
45. Number of irrigations applied after crop establishment (*IrrigationNumber*) \_\_\_\_\_
46. Application of first irrigation in days after sowing (*FirstIrrigationDay*) \_\_\_\_\_
47. Application of second irrigation in days after sowing (*SecondIrrigationDay*) \_\_\_\_
48. Application of third irrigation in days after sowing (*ThirdIrrigationDay*) \_\_\_\_\_\_
49. Application of fourth irrigation in days after sowing (*FourthIrrigationDay*) \_\_\_\_\_\_
50. Application of fifth irrigation in days after sowing (*FifthIrrigationDay*) \_\_\_\_\_\_
51. Name of herbicide applied for weed control (*HerbicideName*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
52. Rate of herbicide applied (*HerbicideDose*) \_\_\_\_\_\_\_\_\_\_\_
53. Date of herbicide application (*HerbicideDate*) \_\_\_\_\_\_\_\_\_\_\_\_
54. Number of manual weeding performed to control weed (*WeedingNumber*) \_\_\_\_
55. Proportion of crop lodged at the time of harvesting in percent (*CropLodging*) \_\_\_
56. Date of wheat harvest (*HarvestDate*) \_\_\_\_\_\_\_\_\_\_\_
57. Weight of total biomass in kg at spot-1 of 2m X 2m (*BundleSpot1*) \_\_\_\_\_\_
58. Weight of total biomass in kg at spot-2 of 2m X 2m (*BundleSpot2*) \_\_\_\_\_\_
59. Weight of total biomass in kg at spot-3 of 2m X 2m (*BundleSpot3*) \_\_\_\_\_\_

Calculated mean yield of biomass in the plot in ton/hectare (*BiomassYield*)

1. Weight of grain in kg at spot-1 of 2m X 2m (*GrainSpot1*) \_\_\_\_\_\_\_
2. Weight of grain in kg at spot-2 of 2m X 2m (*GrainSpot2*) \_\_\_\_\_\_\_
3. Weight of grain in kg at spot-3 of 2m X 2m (*GrainSpot3*) \_\_\_\_\_\_\_

Calculated mean grain yield in the plot in ton/hectare (*GrainYield*)

1. Weight of 1000 wheat grains in gram at spot-1 (*TestWeightSpot1*) \_\_\_\_\_\_\_
2. Weight of 1000 wheat grains in gram at spot-2 (*TestWeightSpot2*) \_\_\_\_\_\_\_
3. Weight of 1000 wheat grains in gram at spot-3 (*TestWeightSpot3*) \_\_\_\_\_\_\_

Calculated mean test weight of grain in the plot (*TestWeight*)

1. Number of tillers in one meter length at spot-1 (*TillersSpot1*) \_\_\_\_\_\_\_\_
2. Number of tillers in one meter length at spot-2 (*TillersSpot2*) \_\_\_\_\_\_\_\_
3. Number of tillers in one meter length at spot-3 (*TillersSpot3*) \_\_\_\_\_\_\_\_

Calculated mean of number of tillers (*TillersCount*)

1. Number of grains in first ear-head selected randomly (*GrainsEH1*) \_\_\_\_
2. Number of grains in second ear-head selected randomly (*GrainsEH2*) \_\_\_\_\_
3. Number of grains in third ear-head selected randomly (*GrainsEH3*) \_\_\_\_\_\_
4. Number of grains in fourth ear-head selected randomly (*GrainsEH4*) \_\_\_\_\_\_
5. Number of grains in fifth ear-head selected randomly (*GrainsEH5*) \_\_\_\_\_\_

Calculated average number of grains per ear-head (*GrainsCount*)