Effect of mulching and date of transplanting on phenology and yield contributing characters of Tomato

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Experimental Details

- **Dates of transplanting: -**
  - D1: - 1st week of Dec
  - D2: - 3rd week of Dec
  - D3: - 1st week Of Jan
- **Treatments**
  - T1 - Transparent Polythene Mulch
  - T2 - Black Polythene Mulch
  - T3 - Rice Straw Mulch
  - T4 - Control
- **Layout Details**
  - Design - Split Plot Design
  - Total treatments - Twelve
  - Replications - Three
  - Total plots - Thirty Six

Climate during crop growth

First Year

- **Maximum temperature: 11.2 to 43.0ºC,**
- **Minimum temperature: 3.9 to 29.2ºC,**
- **Total rainfall : 234.1 mm,**
- **Evaporation : 1069.4 mm**
- **Sunshine hours : 1.8 to 11.9 hours**
- **Mean relative humidity : 27 to 91%.**

Second Year

- **Maximum temperature : 13.7 to 43.7ºC**
- **Minimum temperature : 5.4 to 26.7ºC**
- **Total rainfall : 207.4 mm**
- **Evaporation : 1039.7 mm**
- **Sunshine hours : 1.6 to 11.5 hours**
- **Mean relative humidity : 30 to 94%.**

Sowing and Transplanting

- Sowing
  - The seeds were sown on 3rd week of October, 1st and 3rd week of November.
- Transplanting
  - Transplanting was done on 1st and 3rd week of December and 1st week of January.

Material and Method

Five random plants were selected to note down the days to flower initiation, first fruit set and first fruit harvest.

Days to flower initiation were recorded when one or more flowers appeared in at least three plants out of five randomly selected plants from each plot.

For fruit setting, when three out of five selected plants from each plot had borne one or more fruits, the numbers of days from transplanting were calculated.

Days to first fruit harvest was recorded when 50 per cent fruits from the five randomly selected plants in each plot were ready for harvesting.

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Same five plants were used to count the number of branches and fruits per plant.

Branches were counted at the final harvesting of the plants.

The numbers of fruits picked from those selected plants were recorded at each picking and total numbers of fruits per plant were calculated after all pickings.

For total yield the total weight of fruit from all the pickings was added up from the each plot and then it was converted into quintal per hectare.

Effect of mulches and dates of transplanting on phenological stages

- ***Days to flower initiation***
- ***Days to first fruit set***
- ***Days to first fruit harvest:***

Days to flower initiation

Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2002-03)				
D1	86	90	98	104	94.5
D2	74	79	85	89	81.8
D3	66	72	79	83	75.0
Mean	75.3	80.3	87.3	92.0	
CD (P=0.05)	Dates 7.5 Treatments 4.3 Dates X Treatments 5.6				
Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2003-04)				
D1	82	88	97	101	92.0
D2	70	74	82	88	78.5
D3	65	68	78	81	73.0
Mean	72.3	76.7	85.7	90.0	
CD (P=0.05)	Dates 5.3 Treatments 4.7 Dates X Treatments 4.5				

Days to first fruit set

Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2002-03)				
D1	90	93	103	107	98.3
D2	79	82	90	93	86.0
D3	70	77	84	88	79.8
Mean	79.7	84.0	92.3	96.0	
CD (P=0.05)	Dates 6.1 Treatments 3.5 Dates X Treatments 3.9				
Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2003-04)				
D1	87	92	101	106	96.5
D2	73	79	85	91	82.0
D3	68	71	82	84	76.3
Mean	76.0	80.7	89.3	93.7	
CD (P=0.05)	Dates 5.7 Treatments 3.2 Dates X Treatments 3.7				

Days to first fruit harvest:

Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2002-03)				
D1	106	111	119	127	115.8
D2	92	95	103	101	97.8
D3	81	84	89	90	86.0
Mean	93.0	96.7	103.7	106.0	
CD (P=0.05)	Dates 10.6 Treatments 4.3 Dates X Treatments 5.7				
Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2003-04)				
D1	101	108	117	121	111.8
D2	89	91	101	98	94.8
D3	78	83	87	89	84.3
Mean	89.3	94.0	101.7	102.7	
CD (P=0.05)	Dates 10.1 Treatments 3.8 Dates X Treatments 5.1				

Effect of mulches and dates of transplanting on yield and yield contributing characters

- ***Number of branches per plant***
- ***Number of fruits per plant***
- ***Total yield***

Number of branches per plant

Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2002-03)				
D1	10.4	10.2	9.7	8.8	9.8
D2	9.8	9.5	9.0	8.0	9.1
D3	8.7	8.3	8.1	8.0	8.3
Mean	9.6	9.3	8.9	8.3	
CD (P=0.05)	Dates 0.8 Treatments NS Dates X Treatments 1.0				
Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2003-04)				
D1	10.6	10.1	9.9	8.5	9.8
D2	9.4	9.0	8.3	8.0	8.7
D3	8.4	8.1	7.9	7.8	8.0
Mean	9.5	9.1	8.7	8.1	
CD (P=0.05)	Dates 1.0 Treatments 0.3 Dates X Treatments 1.2				

Number of fruits per plant

Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2002-03)				
D1	47.7	42.2	38.1	33.4	40.3
D2	44.5	39.4	34.4	30.2	37.1
D3	41.4	38.3	28.9	31.7	35.1
Mean	44.5	40.0	33.8	31.7	
CD (P=0.05)	Dates 2.3 Treatments 4.9 Dates X Treatments 5.4				
Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2003-04)				
D1	52.6	48.9	40.4	39.9	45.5
D2	49.1	47.0	38.0	37.8	43.0
D3	46.3	44.5	34.8	33.1	39.7
Mean	49.3	46.8	37.7	36.9	
CD (P=0.05)	Dates 2.5 Treatments 3.7 Dates X Treatments 4.7				

Total yield

Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2002-03)				
D1	755.7	612.7	490.9	425.3	571.1
D2	644.0	543.8	425.7	368.9	495.6
D3	556.4	479.8	351.1	385.9	443.3
Mean	652.0	545.5	422.6	393.3	
CD (P=0.05)	Dates 58.0 Treatments 91.2 Dates x Treatments 78.0				
Dates of Transplanting	Mulching Treatments				Mean
	T1	T2	T3	T4	
	(2003-04)				
D1	859.9	755.9	567.2	539.9	680.7
D2	713.4	631.2	491.3	480.8	579.2
D3	624.6	577.0	430.4	414.9	511.7
Mean	732.6	654.7	496.3	478.5	
CD (P=0.05)	Dates 61.2 Treatments 121.5 Dates x Treatments 91.2				

Thank You