

Table 1. Description of the experimental fungicides

Trade name	Common name	Content of active ingredients	Formulation type	Recommendation rates (l/ha)	Mode of action
Tilt 250 EC	Propiconazole	Propiconazole250	EC	0.5	Systemic
Natura 250EW	Tebuconazole	Tebuconazole250	EW	0.5	Systemic
Control (untreated)			-	-	-

Table 2. The effect of varieties and fungicide on plant height, thousand kernel weight and number of kernels per spike.

Varieties	TKW(g)	PH (cm)	NKPS
Alem-Tena	32.61 ^c	78.72 ^b	53.33 ^a
Utuba	41.50 ^a	81.77 ^a	51.44 ^b
Mangudo	39.23 ^b	77.61 ^b	49.22 ^c
Ude	38.93 ^b	80.94 ^a	49.22 ^c
Tesfaye	31.05 ^c	69.22 ^c	50.66 ^{bc}
Et cross-21	40.02 ^{ab}	81.00 ^a	52.11 ^{ab}
HSD (5%)	1.78**	1.40**	1.47**
Fungicides			
Control (Unsprayed)	35.95 ^c	78.25 ^a	50.00 ^b
Propiconazole	37.17 ^b	78.22 ^a	50.66 ^a
Tebuconazole	38.55 ^a	78.16 ^a	52.11 ^a
HSD (5%)	0.60*	0.80 ^{ns}	0.84**
CV (%)	1.97	1.26	2.03

Note: Means with the same letters are not significantly different among treatments. PH= Plant height, TKW= Thousand kernel weight, NKPS= number of kernels per spike, CV (%) = coefficient of variation in percent, HSD =Tukey's Honestly Significant Difference, ns= non-significant, * =significant difference at 5% probability level, **=highly significant difference at 1% probability level.

Table 3. Interaction of effects of varieties and fungicides on straw yield, above-ground dry biomass, grain yield and harvest index

Varieties	Fungicides	Straw Yield (t/ha)	Above-ground biomass (t/ha)	Grain yield (t/ha)	Harvest Index (%)
Alem-Tena	M1	4.23 ^{hj}	6.52 ^{fg}	2.29 ⁱ	35.23 ^{c-f}
	M2	4.89 ^{gh}	7.52 ^{de}	2.63 ^{gi}	34.98 ^{c-f}
	M3	6.57 ^{c-e}	9.44 ^c	2.87 ^{fg}	30.49 ^f
Utuba	M1	4.09 ^{h-j}	6.50 ^{fg}	2.43 ^{hi}	37.29 ^{a-c}
	M2	5.97 ^{d-f}	9.52 ^c	3.55 ^{de}	37.34 ^{a-c}
	M3	5.64 ^{e-g}	9.93 ^{bc}	4.28 ^{ab}	43.16 ^a
Mangudo	M1	3.73 ^{ij}	6.22 ^{fg}	2.48 ^{gi}	40.18 ^{a-c}
	M2	4.85 ^{gh}	8.16 ^d	3.31 ^e	40.47 ^{a-c}
	M3	5.61 ^{fg}	9.64 ^{bc}	4.03 ^{bc}	41.85 ^{ab}
Ude	M1	4.42 ^{hi}	7.02 ^{ef}	2.59 ^{gi}	36.98 ^{b-e}
	M2	7.09 ^{bc}	10.58 ^b	3.49 ^{de}	33.01 ^{ef}
	M3	6.68 ^{cd}	10.59 ^b	3.90 ^{bcd}	36.87 ^{b-e}
Tesfaye	M1	3.42 ^j	5.84 ^g	2.41 ^{hi}	41.35 ^{ab}
	M2	5.38 ^{fg}	8.12 ^d	2.74 ^{gh}	33.73 ^{ef}
	M3	6.27 ^{c-f}	9.53 ^c	3.26 ^{ef}	34.33 ^{d-f}
Et cross-21	M1	5.02 ^{gh}	7.72 ^{de}	2.69 ^{gi}	35.04 ^{c-f}
	M2	8.54 ^a	12.30 ^a	3.76 ^{cd}	30.60 ^f
	M3	7.83 ^{ab}	12.47 ^a	4.63 ^a	37.16 ^{b-e}
HSD (5%)		0.944 ^{**}	0.95 ^{**}	0.95 ^{**}	5.97 ^{**}
CV (%)		5.51	3.55	3.55	5.29

Note: Means with the same letters are not significantly different among treatments, HI=Harvest index, CV (%) = coefficient of variation in percent, HSD =Tukey's honestly/ minimum significant difference, ns= non-significant, * =significant difference at 5% probability level, **=highly significant difference at 1% probability level, M1= Control (unsprayed), M2=Propiconazole, M3= Tebuconazole.

Table 4. Dominated and un dominated partial budget analysis for the management of fusarium head blight of durum wheat.

Variety	Fungicide	AGY (kg/ha)	AStY (kg/ha)	AGY (ETB/h a)	AStY (ETB/ha)	TGB (ETB/ha)	TVC	NB (ETB/ha)
Alem-Tena	Control (Unsprayed)	2066.6	3808.4	103329	17137.9	120467.2	0	120467
Utuba	Control (Unsprayed)	2188.8	3681.2	109440	16565.4	126005.4	0	126005
Mangudo	Control (Unsprayed)	2237.9	3363.3	111895	15135	127030	0	127030
Ude	Control (Unsprayed)	2339.5	3985.5	11697.6	17934.7	134910.3	0	134910
Tesfaye	Control (Unsprayed)	2174.5	3085.6	108723	13885	122607.5	0	DM
Et cross-21	Control (Unsprayed)	2428.4	4521.6	121418	20347.4	141765.5	0	141765
Alem-Tena	Propiconazole	2368.9	4406.1	118444	19827.5	143771.9	5500	DM
Utuba	Propiconazole	3201.9	5373.1	160096	24178.9	189774.5	5500	184275
Mangudo	Propiconazole	2982.3	4367.7	149117	19654.5	174271.4	5500	DM
Ude	Propiconazole	3146.3	6382.7	157314	28722.2	191536.2	5500	186036
Tesfaye	Propiconazole	2466.1	4843.9	123304	21797.7	150601.4	5500	DM
Et cross-21	Propiconazole	3388	7689.2	169401	34601.4	209502.3	5500	204002
Alem-Tena	Tebuconazole	2588.6	5915.4	129430	26619.3	162049.3	6000	DM
Utuba	Tebuconazole	3855.7	5083.4	192783	22875.1	221657.6	6000	215658
Mangudo	Tebuconazole	3634.7	5049.3	181734	22721.9	210456.3	6000	DM
Ude	Tebuconazole	3518.5	6020.5	175926	27092.1	209018.6	6000	DM
Tesfaye	Tebuconazole	2941.2	5643.8	147060	25397.1	178457.1	6000	DM
Et cross-21	Tebuconazole	4171.3	7055.4	208565	31749.2	246313.8	6000	240314

Note: AGY= Adjusted grain yield, ASY=Adjusted Strow yield, TVC=Total Variable Cost, BGY= Birr Grain Yield per hectare, TGB =Total Gross benefit, NB= Net Benefit, DM= dominance, ha= hectare, ETB= Ethiopian Birr.