

Table 1. Trade, common and chemical names; rate and time of application of herbicides used

Trade name	Common name	Chemical name	Rate of application	Selectivity	Manufacturing (Source)	Time of application
Dirby175 Sc	Florasulom+ Flumetsulom	N-(2,6-difluorophenyl-8-fluoro-5-methoxy[1,2 4] triazolo [1,5- c]pyrimidine-2-sulfonamide+ N-(2,6-difluorophenyl-8-fluoro-5-methyl[1,2 4] triazolo[1,5- α]pyrimidine-2- sulfonamide	30cm/fed	Broad-leaved weeds	DowElanco	After 20-25 days from sowing
Harmony extra	Thifensulfuron	Methyl 3-ε-4-methoxy-6-methyl-1ε-3ε-5-Triazine-2-yl) amino [carbonyl amino [sulonyl]-2-thiophencarboxylate	24 g/fed	Broad-leaved	Essenchem Chemical Co., Ltd.	After 20-25 days from sowing
Ecopart	pyraflufen-ethyl, ET 751	pyraflufen ethyl (ethyl 2-chloro-5-(4-chloro-5-difluoromethoxy-1-methyl-1H-pyrazol-3- yl) 4 fluorophenoxy acetate	250cm /fed	Broad-leaved	Nihon Nohyaku	After 20-25 days from sowing
Granstar 75% DF	Tribenuron-methyl	1-Methyl 2[[{N-(4-methoxy-6-methyl-1,3,5 triazin 2-yl) methyl amino}carbonyl] amino] sulfonyl]benzoate	8g/fed	Broad-leaved	DuPont	After 20-25 days from sowing
Illoxan 600 EC	Diclofop methyl	(T)-2-[4-(2,4-dichlorophenoxy) phenoxy] propionic acid	1 L/fed	Narrow leaved	(Hoechst) AgrEvo	After 30 days from sowing
Topic 24%EC	Clodinafop propargyl	®-2-[4-((5-chloro-3-fluoro-2-pyridinyl)oxy} phenoxy] propionic acid	140g/fed	Narrow leaved	Sengerta	After 45 days from sowing
Arelon 50 y. FL	Isoproturon	[N-(4-isopropylphenyl)-N-N-dimethyl urea]	1.25L/fed	Broad and Narrow leaved	Hoechst) AgrEvo / Novartis / Rhone Poulenc	After 20-25 days from sowing

Table 2. Comparative studies between the effects of some herbicides alone and their combinations on controlling weeds in wheat cv. Giza 168. (Combined analysis of the two seasons)

Treatments	Rate / fed	After 60 days from sowing						After 90 days from sowing					
		Fresh weight (g)			Dry weight (g)			Fresh weight (g)			Dry weight (g)		
		Broad leaved	Narrow leaved	Total weeds	Broad leaved	Narrow leaved	Total weeds	Broad leaved	Narrow leaved	Total weeds	Broad leaved	Narrow leaved	Total weeds
Dirby	30 cm	2.53	129.80	132.33	0.37	22.77	23.14	6.00	460.00	466.00	0.93	82.14	83.07
Harmony	24 g	0.46	192.53	192.99	0.07	33.77	33.84	4.06	265.33	269.39	0.63	47.38	48.01
Ecopart	250 cm	10.93	410.66	421.59	1.44	72.04	73.48	18.00	478.66	496.66	2.81	85.47	88.28
Granstar	8 g	0.54	361.33	361.87	0.08	63.38	63.46	4.06	466.66	470.72	0.64	83.33	83.97
Illoxan	1 L	213.33	64.00	277.33	31.37	11.23	42.60	420.00	86.66	506.66	65.62	15.47	81.09
Topic	140 g	260.00	6.00	266.00	38.23	1.05	39.28	461.33	12.00	473.33	72.08	2.14	74.22
Dirby+Illoxan	22.5 cm+ 0.75 L	16.66	81.33	97.99	2.46	14.27	16.73	25.33	110.66	135.99	3.96	19.76	23.72
Dirby+Topic	22.5 cm+ +105 g	3.11	43.33	46.44	0.47	8.27	8.74	9.12	53.33	62.45	1.44	9.52	10.96
Harmony+Illoxan	18g+ 0.75 L	2.80	67.13	69.93	0.41	10.37	10.78	7.15	78.66	85.81	1.12	14.04	15.16
Harmony+Topic	18g +105 g	1.40	6.00	7.40	0.21	1.05	1.26	6.10	12.00	18.10	0.96	2.14	3.10
Ecopart+Illoxan	187.5cm + 0.75L	22.00	43.66	65.66	3.23	7.66	10.89	62.66	104.00	166.66	9.79	18.57	28.36
Ecopart+Topic	187.5cm + 105 g	18.00	41.40	59.40	2.64	7.26	9.90	69.33	73.33	142.66	10.83	13.09	23.92
Granstar+Illoxan	6g + 0.75L	1.62	22.26	23.88	0.24	3.90	4.14	5.62	44.66	50.28	0.89	7.97	8.86
Granstar+Topic	6 g + 105 g	1.50	10.00	11.50	0.23	1.75	1.98	4.11	24.00	28.11	0.65	4.28	4.93
Arelon	1.25 L	5.00	0.40	5.40	0.84	0.06	0.90	7.33	4.00	11.33	1.14	0.71	1.85
Hand weeding	-	90.00	122.60	212.60	13.23	21.50	34.73	160.00	200.00	360.00	25.00	35.71	60.71
Unweeded	-	340.00	452.66	792.66	50.00	79.41	129.41	549.33	516.00	1065.33	85.83	92.13	177.96
LSD at 5%		10.56	15.78	22.02	1.54	3.38	4.36	13.12	19.97	26.96	2.04	3.56	4.56

Table 4. Comparative studies between the effects of some herbicides alone and their combinations on yield and yield components of wheat cv. Giza 168. (Combined analysis of the two seasons)

Treatments	Rate / fed	No of spikes / m ²	Spike length (cm)	No of spikelets/ spike	No of grains/spike	Weight of grains/spike (g)	Weight of 1000 grains (g)	Grain yield (ardeb/fed.)	straw yield (ton/fed)	Biological yield(kg /fed)
Dirby	30 cm	416	9.72	19.10	51.00	2.22	43.55	21.12	3.38	6548.0
Harmony	24 g	420	9.87	19.55	54.00	2.00	43.73	21.55	3.96	7192.5
Ecopart	250 cm	402	9.76	18.44	46.33	2.01	44.16	19.63	3.35	6294.5
Granstar	8 g	408	8.83	18.77	48.00	2.01	43.51	19.77	3.98	6945.5
Illoxan	1 L	396	9.65	17.77	45.00	1.89	42.77	19.63	3.42	6364.5
Topic	140 g	427	9.83	19.11	51.66	2.45	43.83	20.30	3.50	6545.0
Dirby +Illoxan	22.5 cm + 0.75 L	482	10.38	19.99	57.66	2.60	45.40	26.49	3.40	7373.5
Dirby+Topic	22.5 cm+ +105 g	542	10.61	20.44	58.66	2.66	46.33	27.16	4.16	8234.0
Harmony+Illoxan	18g+ 0.75 L	506	10.55	20.33	58.66	2.63	46.33	26.69	4.21	8213.5
Harmony+Topic	18g +105 g	630	12.16	22.44	69.66	3.16	56.56	29.84	4.73	9206.0
Ecopart+Illoxan	187.5cm + 0.75L	440	10.5	19.77	56.00	2.50	44.56	24.90	3.69	7425.0
Ecopart+Topic	187.5cm + 105 g	460	10.32	19.77	57.00	2.56	44.92	24.72	3.60	7308.0
Granstar+Illoxan	6g + 0.75L	562	10.83	21.21	59.66	2.67	47.34	27.36	4.60	8704.0
Granstar+Topic	6 g + 105 g	566	11.16	20.99	60.00	2.76	48.10	28.28	4.82	9062.0
Arelon	1.25 L	616	12.05	21.21	60.00	2.83	49.88	28.73	4.87	9179.5
Hand weeding	-	442	9.88	19.66	53.66	2.40	44.44	22.15	4.23	7552.5
Unweeded	-	378	8.55	17.10	42.33	1.81	41.82	16.32	3.19	5638.0
LSD at 5%		17.10	0.71	1.37	4.35	0.32	2.56	1.60	0.164	512.3

Table 5. Comparative studies between the effects of some herbicides alone or their combinations on total amino acid contents in the yielded grains of wheat cv. Giza 168

Treatments	Rate / fed	Amino acids (mg / 100g dry weight)																	
		Asp	Ther	Ser	Glu	Gly	Ala	Cyst	Val	Meth	Isoleu	Leu	Tyr	Hist	Lys	NH ₄	Arg	Pro	Total
Dirby	30 cm	94.84	65.16	642.80	0.00	104.01	113.004	284.57	0.00	62.78	121.48	30.52	84.18	31.10	56.62	466.14	68.43	262.78	2488.42
Harmony	24 g	98.44	75.53	167.62	935.03	110.28	123.29	303.79	0.00	70.21	140.48	33.34	96.4	40.12	62.88	437.87	71.05	295.71	3062.04
Ecopart	250 cm	50.01	39.62	107.62	506.78	64.78	64.09	71.16	0.00	170.3	41.34	81.31	24.87	57.69	21.41	37.87	328.90	43.28	1711.03
Granstar	8 g	60.24	36.58	48.91	457.63	34.68	89.33	209.85	0.00	48.02	74.26	6.28	33.28	10.32	39.16	625.27	45.45	193.95	2013.21
Illoxan	1 L	135.25	0.00	18.42	481.54	73.98	87.71	188.93	0.00	42.64	81.93	16.96	53.01	24.47	41.19	314.75	46.06	178.43	1785.27
Topic	140 g	31.54	37.80	75.10	477.82	57.35	76.82	178.52	0.00	35.66	65.54	12.00	35.02	9.51	35.26	372.44	42.39	213.56	1756.33
Dirby +Illoxan	22.5 cm + 0.75 L	64.09	53.45	112.07	710.67	82.95	91.86	214.75	0.00	48.22	96.39	21.22	62.60	16.89	50.33	337.90	62.49	249.36	2275.24
Dirby+Topic	22.5 cm+ 105 g	199.75	65.61	141.58	931.82	103.49	109.18	260.94	0.00	60.67	123.12	29.88	83.54	26.74	65.71	445.77	87.66	271.92	3007.38
Harmony+Illoxan	18 g + 0.75 L	124.13	52.60	68.17	651.25	64.01	85.66	216.07	4.62	46.89	89.69	10.71	48.40	19.10	44.71	477.08	58.29	188.93	2250.31
Harmony+Topic	18g + 105 g	114.19	92.14	224.17	1197.00	143.76	148.91	444.65	3.45	90.31	178.67	47.82	123.68	53.44	77.52	485.14	105.97	390.54	3921.36
Ecopart +Illoxan	187.5cm + 0.75L	118.29	77.23	79.23	936.40	59.67	105.96	473.56	0.00	74.96	143.31	51.73	147.40	19.71	55.08	702.02	72.19	697.23	3813.97
Ecopart +Topic	187.5cm + 105 g	142.61	48.61	93.64	744.50	76.54	80.30	194.46	0.00	45.10	91.53	16.23	63.92	28.25	46.60	392.03	59.49	222.01	2345.82
Granstar+Illoxan	6g + .75L	186.34	59.70	128.78	721.52	86.72	98.86	231.17	0.00	51.43	106.35	28.58	71.54	31.28	61.63	300.98	79.24	230.56	2474.68
Granstar+Topic	6g +105 g	94.92	70.84	147.85	989.67	106.8	117.65	287.58	0.00	67.02	133.82	33.07	93.09	32.08	58.97	468.8	72.97	263.76	3038.89
Arelon	1.25 L	237.08	86.59	181.06	1105.01	122.26	130.01	324.63	0.00	71.86	148.16	36.64	104.78	48.03	77.51	537.94	102.95	293.37	3607.88
Hand weeding	-	0	69.92	150.91	1103.02	122.88	140.85	344.77	0.00	76.11	148.03	37.74	97.47	43.30	66.10	487.70	79.23	297.08	3265.11
Unweeded	-	39.93	42.53	86.44	507.85	60.00	67.02	148.09	0.00	33.37	68.47	14.96	45.22	15.70	36.30	273.93	46.47	181.54	1667.82