

The data in Table 9 are a summation of the data in Tables 5 through 8. The total number of events and hours that the SO₂ concentrations exceeded the selected intervals is shown and is an expression of the total SO₂ dose at each site.

The number of events ranged from 11 at site 9 to 27 at site 6, and the total time of exposure ranged from 24.2 hours at site 9 to 47.9 hours at site 25.

There was a different "pattern" to the fumigations at each of the sites and therefore a different SO₂ dose. The 15 events at site 25 totaled 47.9 hours with an average duration of 3.2 hours per fumigation. There were 27 events at site 6 for 41.0 hours with an average duration of only 1.5 hours per fumigation. The maximum peak concentrations were similar at all sites with site 9 being slightly lower.

Soybeans--1978

Data from monitoring records were examined, as discussed above, to determine the SO₂ dose for soybeans grown in 1978 (Tables 10 through 13). Again, there was no typical fumigation event as related to duration and peak concentrations. At site 6, the fumigation on July 24 was for only 0.4 hour with a peak SO₂ concentration of 2640 µg/m³ (1 ppm), while the fumigation on July 26 was for 2.8 hours with a peak of only 528 µg/m³ (0.2 ppm). The fumigation with the highest peak SO₂ concentration occurred at site 25 on July 24. Since this fumigation occurred late in the afternoon and the SO₂ concentration remained above 1320 µg/m³ (0.5 ppm) for only 0.6 hour, the dose was not sufficient to cause visual injury to soybeans.

TABLE 9. NUMBER OF EVENTS AND TOTAL HOURS THAT SO₂ CONCENTRATION EXCEEDED STATED LEVELS BETWEEN 0700 AND 1900 FROM JUNE 24 TO SEPTEMBER 5, 1977 AT ALL SITES

Concentration ($\mu\text{g}/\text{m}^3$)	Site No. 6		Site No. 9		Site No. 10		Site No. 25	
	No. of events	Hrs.	No. of events	Hrs.	No. of events	Hrs.	No. of events	Hrs.
0	27	41.0	11	24.2	20	28.2	15	47.9
264	27	21.1	11	14.6	20	18.7	15	29.0
529	27	12.6	11	7.9	20	10.6	14	14.7
793	25	7.0	10	5.1	18	6.5	11	9.4
1057	16	4.6	7	3.2	16	4.3	10	4.7
1322	10	2.7	6	2.2	12	3.2	8	2.5
1586	9	1.7	4	1.1	9	2.2	6	1.4
1850	8	1.4	4	0.7	6	0.8	5	0.8
2114	6	0.8	4	0.3	4	0.5	4	0.4
2379	5	0.6	1	0.1	2	0.2	3	0.3
2643	4	0.3			2	0.2	1	0.1
2907	2	0.15			1	0.1	1	0.05
3172	2	0.06			1	0.05	1	0.01
3436	1	0.01						

TABLE 11. NUMBER OF HOURS THAT SO₂ CONCENTRATION EXCEEDED SELECTED LEVELS FOR EACH FUMIGATION EVENT AT MONITOR NUMBER 9 BETWEEN 0700 AND 1900 FROM JULY 1 TO SEPTEMBER 9, 1978

Concentration (µg/m ³)	Date																									
	7-1	7-3	7-4	7-9	7-10	7-10	7-11	7-15	7-24	7-25	7-26	7-28	8-1	8-2	8-3	8-7	8-8	8-14	8-17	8-18	8-20	8-23	8-26	9-2		
	Number of Hours																									
0	2.4	1.0	1.3	2.0	0.6	1.8	1.0	1.3	1.5	1.1	0.7	3.3	1.3	3.0	3.6	0.5	5.3	1.0	4.1	4.0	3.0	0.5	1.5	3.0	1.3	0.7
204	0.1	0.5	0.4	0.9	0.3	1.2	0.2	0.4	0.7	0.8	0.5	1.7	1.0	2.1	2.5	0.3	3.8	0.4	2.7	0.4	2.7	0.4	1.1	0.8	0.8	0.2
526		0.2	0.05	0.7		0.3		0.1	0.6	0.6		0.8	0.3	1.0	1.0	0.2	3.0	0.2	1.9	0.05	1.8	0.3	0.6	0.1	0.2	0.05
792		0.01	0.02	0.3					0.3	0.3		0.4	0.04	0.7	0.3	0.1	2.3	0.05	1.7							
1056			0.01	0.05					0.3	0.1		0.2		0.5			1.7		1.3							
1320									0.2	0.03		0.05		0.4			1.1		1.2							
1584									0.1	0.02							0.6		1.1							
1848									0.03	0.01							0.5		1.0							
2112																	0.2		0.9							
2376																	0.1		0.8							
2640																	0.02		0.7							
2904																			0.5							
3168																			0.3							
3432																			0.2							
3696																			0.05							
3960																			0.03							

TABLE 12. NUMBER OF HOURS THAT SO₂ CONCENTRATION EXCEEDED SELECTED LEVELS FOR EACH FUMIGATION EVENT AT MONITOR NUMBER 10 BETWEEN 0700 AND 1900 FROM JULY 1 TO SEPTEMBER 6, 1978

Concentration (ppm)	Date																														
	7-3	7-4	7-9	7-10	7-11	7-14	7-15	7-22	7-24	7-24	7-25	7-26	7-28	7-29	7-30	8-1	8-2	8-3	8-6	8-7	8-8	8-14	8-17	8-18	8-19	8-26	8-29	9-2			
	Number of Hours																														
0	1.2	0.6	1.2	2.3	0.8	2.0	1.3	0.7	0.9	1.2	0.6	4.7	4.6	1.8	2.0	0.7	2.9	6.1	0.8	0.2	4.7	1.0	2.6	3.6	4.3	1.1	5.4	1.6	0.6	1.3	1.9
254	0.3	0.4			1.0	0.6	0.05	0.7	1.0	0.3	2.6	1.7	0.05	0.2	0.5	1.8	3.1	0.3	0.1	3.8	0.8	2.0	0.3	2.2	0.7	2.6	0.4	0.2	0.3	0.7	
528	0.05	0.3			0.6	0.3	0.5	0.7	0.05	1.6	0.5			0.3	1.0	1.1	0.05	0.03	0.03	3.0	0.4	1.6	0.2	0.5	0.3	0.6	0.2		0.05	0.3	
792					0.5	0.03		0.3	0.5		1.1	0.1		0.2	0.4	0.7				2.2	0.3	1.4	-0.05	0.2	0.05	0.3	0.05		0.2	0.2	
1055					0.1	0.01		0.2	0.4		0.6	0.04		0.1	0.05	0.5				1.3	0.1	0.8		0.1					0.1	0.05	
1310					0.3			0.1	0.3		0.5			0.02		0.4				0.9	0.7		0.7						0.05		
1554					0.2			0.05	0.2		0.2			0.01		0.3				0.6	0.6		0.6								
1548					0.05			0.01	0.1		0.05					0.2				0.4	0.4		0.5								
2222					0.01						0.04					0.1				0.3	0.3		0.3								
2375											0.03					0.05				0.2	0.2		0.3								
2640											0.02					0.02				0.05	0.05		0.2								
3434											0.01					0.01				0.05	0.05		0.2								
3448											0.01					0.01				0.04	0.04		0.2								
3633											0.03					0.03				0.04	0.04		0.2								
3895											0.02					0.03				0.03	0.03		0.1								
3970											0.01					0.01				0.03	0.03		0.05								
4224											0.02					0.02				0.02	0.02		0.01								
4432											0.01					0.01				0.01	0.01		0.01								

The data in Table 14 are a summation of the data in Tables 10 through 13 and express the total SO₂ dose for the season at all sites.

Wheat--1978-1979

Data from monitoring records were examined, as discussed above for soybeans, to determine the SO₂ dose for wheat grown during the 1978-79 season (Tables 15 through 18). The maximum peak concentration of 5808 µg/m³ (2.2 ppm) occurred at site 10 on April 30, 1979, but was of relatively short duration.

The data in Table 19 express the total SO₂ dose for the season at all sites.

The data presented in this section represent the SO₂ dose for crops exposed to ambient air from the early bloom stage to maturity. The yield of plants exposed to ambient air can be compared only with yield of plants grown with the air pollution exclusion operating and not with that for plants grown in the absence of SO₂. Since the air pollution exclusion system was activated when SO₂ concentration exceeded 264 µg/m³, soybeans grown in control plots at sites near the power plant were exposed to SO₂ concentrations between 0 and 264 µg/m³ for 10-35 hrs during the fruiting stage of growth. Limited monitoring in the exclusion plots during a fumigation indicated that SO₂ concentration was reduced below ambient but never completely eliminated from the plant canopy. Although the air pollution exclusion system reduced peak SO₂ concentrations to a level that prevented acute injury to plants, the system does not eliminate some low-level SO₂ exposure.

FOLIAR INJURY AND YIELD OF SOYBEANS--1977 AND 1978

This study was initiated to measure the effects of acute exposure to SO₂ on crop production. The Widows Creek area was selected for this

TABLE 14. NUMBER OF EVENTS AND TOTAL HOURS THAT SO₂ CONCENTRATION EXCEEDED STATED LEVELS BETWEEN 0700 AND 1900 FROM JULY 1 TO SEPTEMBER 6, 1978 AT ALL SITES

Concentration ($\mu\text{g}/\text{m}^3$)	Site No. 6		Site No. 9		Site No. 10		Site No. 25	
	No. of events	Hrs.	No. of events	Hrs.	No. of events	Hrs.	No. of events	Hrs.
0	27	41.0	27	51.1	31	63.8	15	26.2
264	27	20.7	27	27.3	28	28.7	14	7.6
528	24	10.6	21	14.0	24	14.4	6	2.7
792	22	5.4	16	8.6	18	8.6	5	1.6
1056	15	2.9	11	5.5	14	4.6	3	1.0
1320	13	1.7	9	3.7	9	3.3	2	0.8
1584	8	0.65	6	2.2	8	2.2	2	0.6
1848	6	0.30	5	1.6	7	1.3	1	0.5
2112	4	0.17	3	1.1	6	0.8	1	0.4
2375	3	0.08	3	0.9	5	0.61	1	0.4
2640	2	0.04	2	0.7	5	0.31	1	0.4
2904	1	0.02	1	0.5	5	0.28	1	0.4
3168	1	0.02	1	0.3	2	0.24	1	0.4
3432	1	0.01	1	0.2	2	0.24	1	0.4
3696			1	0.05	2	0.13	1	0.3
3960			1	0.03	2	0.08	1	0.3
4224					1	0.02	1	0.3
4488					1	0.01	1	0.3
4752							1	0.3
5015							1	0.2
5280							1	0.2
5544							1	0.2
5808							1	0.2
6072							1	0.2
6336							1	0.2
6600							1*	0.2

*Continued to a peak concentration of 9240 $\mu\text{g}/\text{m}^3$

TABLE 15. THE NUMBER OF HOURS THAT SO₂ CONCENTRATION EXCEEDED SELECTED LEVELS FOR EACH FUMIGATION EVENT AT MONITOR 6 BETWEEN 0700 AND 1900 FROM MARCH 19 TO MAY 7, 1979

Concentration ($\mu\text{g}/\text{m}^3$)	Date										
	3-26	3-27	4-5	4-6	4-16	4-17	4-18	4-19	4-29	4-30	4-30
	Number of Hours										
0	1.6	0.7	2.6	1.8	0.3	1.9	0.6	3.1	1.3	0.5	1.8
264	0.9	0.3	1.7	1.2	0.1	1.6	0.5	2.8	0.7	0.4	1.5
528	0.3		0.5	0.6		0.4	0.4	0.6	0.4	0.4	1.1
792	0.1		0.1	0.3		0.05	0.2	0.4	0.05	0.3	0.5
1056	0.05		0.05	0.2			0.1	0.3		0.2	0.4
1320				0.1				0.1		0.2	0.3
1584				0.05				0.05		0.2	0.1
1848										0.05	0.05

TABLE 17. THE NUMBER OF HOURS THAT SO₂ CONCENTRATION EXCEEDED SELECTED LEVELS FOR EACH FUMIGATION EVENT AT MONITOR 10 BETWEEN 0700 AND 1900 FROM MARCH 19 TO MAY 7, 1979

Concentration ($\mu\text{g}/\text{m}^3$)	Date										
	3-25	3-25	3-26	4-5	4-7	4-18	4-19	4-29	4-30	4-30	5-5
	Number of Hours										
0	2.1	3.2	1.6	3.5	0.7	0.8	4.7	0.8	1.7	2.0	0.5
264	1.3	1.1	0.9	2.7	0.3	0.7	3.1	0.7	1.5	1.3	0.4
528	0.9	0.3	0.4	1.3	0.3	0.2	1.6	0.5	1.3	0.6	0.3
792	0.7	0.1	0.2	0.5	0.2		1.0	0.3	1.0	0.2	0.1
1056	0.4	0.05	0.05	0.1	0.2		0.6	0.2	0.8	0.1	0.1
1320	0.3	0.01		0.05	0.2		0.2	0.05	0.8		
1584					0.1		0.1		0.7		
1848					0.1				0.6		
2112					0.05				0.3		
2375					0.05				0.2		
2640					0.02				0.2		
2904					0.01				0.2		
3168									0.2		
3432									0.2		
3696									0.2		
3960									0.2		
4224									0.2		
4488									0.2		
4752									0.1		
5015									0.1		
5280									0.1		
5544									0.05		
5808									0.01		

TABLE 18. THE NUMBER OF HOURS THAT SO₂ CONCENTRATION EXCEEDED
SELECTED LEVELS FOR EACH FUMIGATION EVENT AT MONITOR 25
BETWEEN 0700 AND 1900 FROM MARCH 19 TO MAY 7, 1979

Concentration ($\mu\text{g}/\text{m}^3$)	Date					
	3-20	3-27	4-10	4-10	4-17	4-30
	Number of Hours					
0	1.2	0.8	1.3	1.4	1.9	0.5
264	0.4	0.7	0.4	0.8	0.4	0.4
528	0.2	0.6		0.05		0.3
792		0.5				0.3
1056		0.4				0.3
1320		0.2				0.3
1584						0.1
1848						0.05

TABLE 19. NUMBER OF EVENTS AND TOTAL HOURS THAT SO₂ CONCENTRATION EXCEEDED STATED LEVELS BETWEEN 0700 AND 1900 FROM MARCH 19 TO MAY 7, 1979

Concentration ($\mu\text{g}/\text{m}^3$)	Site No. 6		Site No. 9		Site No. 10		Site No. 25	
	No. of events	Hrs.	No. of events	Hrs.	No. of events	Hrs.	No. of events	Hrs.
0	11	16.2	12	21.1	11	21.6	6	7.1
264	11	11.7	12	14.8	11	14.0	6	3.1
528	9	5.1	7	8.4	11	7.7	4	1.1
792	9	2.0	6	4.5	10	4.3	2	0.8
1056	7	1.3	6	2.5	10	2.6	2	0.7
1320	4	0.6	4	1.5	7	1.6	2	0.5
1584	4	0.4	3	0.8	3	0.9	1	0.1
1848	2	0.1	2	0.6	2	0.7	1	0.05
2112			2	0.5	2	0.3		
2375			2	0.3	2	0.2		
2640			2	0.2	2	0.2		
2904			1	0.1	2	0.2		
3168			1	0.1	1	0.2		
3432			1	0.1	1	0.2		
3696			1	0.05	1	0.2		
3960					1	0.2		
4224					1	0.2		
4488					1	0.2		
4752					1	0.1		
5015					1	0.1		
5280					1	0.1		
5544					1	0.05		
5808					1	0.01		

study because of the relatively high frequency of ground-level SO₂ exposures in the vicinity of the power plant. This phenomenon resulted from a combination of short stacks, topography, and prevailing meteorological conditions. The subsequent change to a tall stack has apparently not decreased the frequency of ground-level exposure on Sand Mountain but the operation of emission control devices has reduced the peak SO₂ concentrations significantly. During 1977 and 1978, the exposure of soybeans to SO₂ would be considered chronic rather than acute.

The only visual symptoms attributed to SO₂ injury during the two years were noted on soybeans in one exposed plot at site 9 on August 22, 1978. On 75 percent of the plants, 10 percent of their leaves exhibited chlorosis and bronzing; on the affected leaves, an estimated 3 percent of the surface area was chlorotic and 7 percent showed bronzing, resulting in less than 1 percent of the total leaf area in the plot showing symptoms of injury. Visual symptoms of this type usually require 5 to 7 days after exposure to completely develop. During the period August 14 to 22, the soybeans were exposed to six SO₂ fumigations with the highest single dose occurring on August 14 (Table 11).

Analysis of variance indicated no statistically significant ($P < 0.05$) yield differences between air pollution exclusion plots and their comparable exposed plots at any of the sites during the two-year study (Tables 20 and 21; appendices A and B). The results at site 22 in 1977 indicate that operation of the air pollution exclusion system does not adversely affect growth and yield of soybeans. The lower yield of soybeans at site 22 in 1978 with unfiltered air continuously was not significantly different from the other treatments (Table 21).

TABLE 20. AVERAGE SOYBEAN YIELDS BY TREATMENT AT ALL SITES IN 1977

Treatment	Site				
	6	9	10	25	22
	Yield (kg/ha)				
Exposed to ambient air	1323	2811	2449	1661	2034
Filtered air when $[SO_2] > 264 \mu g/m^3$	1188	2594	2548	1480	2033

TABLE 21. AVERAGE SOYBEAN YIELDS BY TREATMENT AT ALL SITES IN 1978

Treatment	Site				
	6	9	10	25	22
	Yield (kg/ha)				
Exposed to ambient air	1684	2437	2035	2352	1554
Filtered air when $[SO_2] > 264 \mu g/m^3$	1698	2261	2277	2086	
Filtered air when $[SO_2] < 264 \mu g/m^3$				2270	
Filtered air - continuous				2280	1564
Unfiltered air - continuous					1414

During five years of operation, soybean yields in the filtered and unfiltered air greenhouses near the Widows Creek power plant (1971-75), averaged 24 percent less in the unfiltered section than in the filtered section. Since the plants grown in the filtered section were protected from all existing sources of air pollutants, TVA biologists could not conclude that the steam plant emissions were the sole cause for the reductions in yield in the unfiltered section.

In 1976, the greenhouses were moved to site 22, remote from the steam plant, to evaluate the effect of background levels of air pollutants on yield of soybeans. Soybean yields averaged 24.5 percent less in the unfiltered air than in the filtered air for the two years (Table 22). These reductions in yield are the same as those observed at Widows Creek and indicate that air pollutants other than SO₂ are causing yield reductions to soybeans grown on Sand Mountain.

FOLIAR INJURY AND YIELD OF WHEAT

There were no visual symptoms attributed to SO₂ injury noted on wheat grown at any of the experimental sites. Analysis of variance indicated no statistically significant (P<0.05) differences in yield between air pollution exclusion plots and their comparable exposed plots at any of the sites (Table 23; appendices C).

TABLE 22. THE YIELD OF SOYBEANS GROWN IN GREENHOUSES AT SITE 22 DURING 1977 AND 1978

Treatment	Yield (g) ^a			Mean
	G. H. #1 ^b	G. H. #2	G. H. #3	
	<u>1977</u>			
Ambient air	746	847	974	856
Filtered air	942	1079	1219	1080
	<u>1978</u>			
Ambient air	690	524		607
Filtered air	880	805		842

a. Oven dry weight of beans

b. G. H. = greenhouse

TABLE 23. AVERAGE WHEAT YIELDS BY TREATMENT AT ALL SITES IN 1978

Treatment	Site				
	6	9	10	25	22
	Yield (kg/ha)				
Exposed to ambient air	1758	2384	2356	1414	2170
Filtered air when [SO ₂] >264 µg/m ³	1598	2515	2331	1689	
Filtered air - continuous					2383
Unfiltered air - continuous					2258

CONCLUSIONS AND RECOMMENDATIONS

As a result of experiments conducted in 1977 to increase the efficiency of the air pollution exclusion system, TVA biologists modified the experimental design for the 1978 crops. The number of crop rows were increased to nine and their directions were oriented perpendicular to a line from the power plant. A fiberglass barrier, 1.3 meters tall, was constructed the length of each exclusion plot along the side nearest the power plant and tilted toward the plot to deflect polluted air upward and over the plant canopy. Two air pollution exclusion units were installed side by side to provide eight plastic tubes on each exclusion plot.

One objective of this investigation was to quantify the relationship between the amount of foliar injury resulting from SO_2 exposure and crop yield. A tall stack and SO_2 emission control devices were put into operation at the Widows Creek Power Plant after this experiment was sited on Sand Mountain. Ambient SO_2 concentrations have been reduced significantly and acute SO_2 exposures to crops have been rare. The single observance of slight injury to soybean foliage and the complete lack of observable SO_2 injury symptoms on the one crop of wheat taken to harvest have prevented quantification of the relationship between foliar injury and yield.

It is recommended that the study be discontinued at the present site after the 1979 growing season. Acute SO_2 exposure to crops grown near all of TVA's coal-fired power plants will be rare after planned emission control devices are installed. There are reports that chronic exposure to low levels of SO_2 can cause damage to plants and future studies should concern the effect of chronic SO_2 exposure on yield of agricultural crops.

APPENDIX A

YIELD OF SOYBEANS FOR EXPERIMENTAL PLOTS
WIDOWS CREEK POWER PLANT - 1977 GROWING SEASON

Site no.	Exposed to ambient air		Filtered air when [SO ₂] >264 µg/m ³	
	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)
6	1	1512	13	1049
	4	1527	16	1112
	6	1427	18	1380
	15	926	3	1372
	17	1225	5	1028
	Mean	(1323)		(1188)
9	2	2832	1	2289
	3	3327	7	2723
	11	2636	10	2493
	13	2006	14	2780
	25	3255	8	2685
	Mean	(2811)		(2594)
10	2	2790	9	2466
	8	2391	3	2749
	10	2652	1	2450
	18	2512	12	2845
	19	1902	11	2228
	Mean	(2449)		(2548)
25	5	1650	6	1309
	8	1755	7	1615
	10	1786	11	1403
	18	1498	4	1473
	19	1617	9	1598
	Mean	(1661)		(1480)
22	2	2056	1	2242
	6	2115	5	1674
	8	2028	7	2042
	13	1970	12	2349
	14	1999	11	1857
	Mean	(2034)		(2033)

APPENDIX B

YIELD OF SOYBEANS FOR EXPERIMENTAL PLOTS - WIDOWS CREEK POWER PLANT - 1978 GROWING SEASON

Site no.	Exposed to ambient air		Filtered air when [SO ₂] >264 µg/m ³		Filtered air when [SO ₂] <264 µg/m ³		Filtered air continuously		Unfiltered air continuously	
	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)
6	2	1560	1	1642						
	4	1808	3	1779						
	15	1685	13	1672						
	Mean	(1684)		(1698)						
9	20	2723	19	2272						
	22	2061	21	2211						
	24	2528	23	2299						
	Mean	(2437)		(2261)						
10	17	2237	22	2211						
	21	1795	16	2171						
	23	2074	18	2448						
	Mean	(2035)		(2277)						
25	2	2333	3	1947	13	1288*	18	2288	4	1459
	14	1224*	15	1915	16	2408	17	2264	11	1368
	19	2370	9	2395	23	2133	24	2288		
	Mean	(2352)		(2086)		(2270)		(2280)		
22	9	1616					3	1637		
	13	1491					12	1491		
	Mean	(1554)						(1564)		

*Severe spider mite infestation

APPENDIX C

YIELD OF WHEAT FOR EXPERIMENTAL PLOTS
 WIDOWS CREEK POWER PLANT
 1978-79 GROWING SEASON

Site no.	Exposed to ambient air		Filtered air when [SO ₂] >264 µg/m ³	
	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)
6	5	2028	4	1410
	17	1758	16	1425
	19	1489	18	1959
	Mean	(1758)		(1598)
9	5	2610	6	2659
	11	2244	10	2375
	25	2299	8	2512
	Mean	(2384)		(2515)
10	1	2485	10	2350
	8	2265	3	2526
	9	2317	2	2116
	Mean	(2356)		(2331)
25	5	1409	6	1939
	8	1161	7	1474
	11	1671	10	1655
	Mean	(1414)		(1689)

APPENDIX D

YIELD OF WHEAT FOR EXPERIMENTAL PLOTS
 REMOTE SITE AT CROSSVILLE, ALABAMA - 1978-79 GROWING SEASON

Site no.	Exposed to ambient air		Filtered air continuously		Unfiltered air continuously	
	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)	Plot no.	Yield (kg/ha)
22	2	1820	5	2242	1	2004
	6	2520	7	2524	8	2511
	Mean	(2170)		(2383)		(2258)