

Experiment

CO_2 (Dry ice) 5hrs

Date	Time of day	Germ. time (days)	Tips			Germination			No. of days
			No.	Cum.	%	No.	Cum.	%	
Dec 17	7 AM	Silver #2 seed (dry) into CO ₂ box in patio							Start
" 17	12 noon	Seed out 5 hr exposure, seven samples wetted. No ① in 68 germ ② ⑦ into 40 start							①
Dec 17	12 noon	Sample ① (102) (91) Wetted & into 68 germ							①
20	9 AM	3 Several tips				0	0	0	
22	1 PM	5 " "				0	0	0	
23	9:30 A	6				0	0	0	
24	9:00 A	7				0	0	0	0%
(End)									
Dec 22	1 PM	Sample ② (109) (97)							⑤
22	1 PM	0				0	0	0	
23	9:30 A	1				0	0	0	
24	9:30 A	2				0	0	0	
25	10 AM	3				2	2		
29	8:30	7				0	2		
(End) 2%									
Dec 28	9 AM	Sample ③ (115) (102)							⑪
29	9 AM	1 Several tips				0	0	0	
31	10:30 A	3 Many tips				1	1		
Jan 1	9 AM	4				28	29		
2	9 AM	5				3	32		
4	9 AM	7				1	33		
(End) 32%									

Silver #2

Experiment

CO₂ (Dry ice) 5 hrs

Date	Time of day	Germ. time (days)	Tips			Germination			No. of days
			No.	Cum.	%	No.	Cum.	%	

Jan 4	9 AM	Sample (4)	0	(99)	(88')	0	0	0	(78)
5	3 PM		1	Several tips					
9	6 AM		5	Many germ left for normality		22	22		
10	11:30 A			Normal		22	44		
11			7	" "		27	71		80%
Some root-tip injury Growth somewhat abnormal Regeneration growth roots									

(End)

Jan 11	9 AM	Sample (5)	0	(110)	(98')				(25)
12	8 AM		1	Many tips		3	3		to 3 mm test
13	8 AM		2	Growth quite normal		67	70		All left
14	10 AM		3	Normal		14	84		
						0	84		

(End)

88%

Jan 15	10 AM	Sample (6)	0	(93)	(83')				(29)
16	10:30 A		1	Normal		6	6		to 4 mm test
17	10 AM		2	"		37	43		
18	1:30 PM		3	"		21	64		
21	11 AM		6	"		3	67		
						1	68		82%

(End)

Jan 21

see next page

Si/ua #2

Date	Time of day	Germ. time (days)	No.	Tips		Germination			No. of days
				Cum.	%	No.	Cum.	%	
1971									
Febr 3	8AM	Sample 7		(107)					(48)
4	10AM	0		Vigorous healthy	40	40			to 13 mm
6	1 noon	1 (48)			19	59			
12		3			14	73			
		9			2	75			
				Plus 8 germ but root tips injured					
				(End)					
		Sample		()					
		0							
		Sample		()					
		0							

Silver #2

Experiment

CO₂ (Dry ice)50hrs

Date	Time of day	Germ. time (days)	Tips			Germination			No. of days
			No.	Cum.	%	No.	Cum.	%	
Dec 17	7AM	Into CO ₂ box							①
" 19	9AM	Out " " Sample ① Into 68° germ							②
		Sample ① Into 68° germ							
		Sample ②-⑦ into 40° strat							
Dec 19	10AM	Sample ① (108) (96')							③
20	9AM	Into 68° germ				0	0	0	
24	9:30A	No tips				0	0	0	
25	10AM					0	0	0	
29	9AM					0	0	0	
									0%
									(End)
Dec 28	9AM	Sample ② (102) (91')				0	0	0	④
29	9AM	A few tips				0	0	0	
31	10:30AM					9	9		
Jan 1	9AM					4	13		0%
4	9AM	⑧ Root tips injured				7	15		16%
									(End)
Jan 4	9AM	Sample ③ (119) (106')				0	0	0	⑤
5	3PM	Many tips							
11	9AM	Many germ lost for normality				37	37		
12	8AM	Most regrowth. Tips injur				13	50		
13	8AM	abnormal growth				19	69		0%
									(End)
		All injured (root tips)							

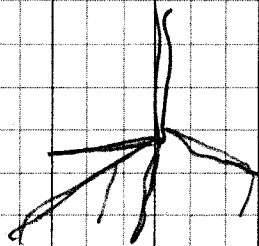
Experiment

CO₂

50 hrs

Date	Time of day	Germ. time (days)	Tips			Germination			No. of days
			No.	Cum.	%	No.	Cum.	%	

Jan 15	11 AM	Sample	(4)	(103)	(92)	1	1		(27)
17	10 AM		0	Many tips					1 mm test
30	1 PM		2	Wait for normality					
			15	Root tips injured but regen.	71	72			
				" " no regeneration	16	88			
				Decayed or nonviable	15				
				(End)					



Root tips (all injured at this temp and exposure but roots regenerate star condition)
These prob would grow in soil.

Febr 3	8 AM	Sample (5)	0	(109)		36 + 36	72		(46)
									to 75 mm Normal
5	11 AM		2			15	51		
7	11 AM		4			7	58		
12	1 PM					27	85		
			Some root tip injury?						
			Wait for normality						
			star roots count						
			star roots normal →			27	85		
			Plus 13 germ but root tips perm injured						

(End)

Febr 11		Sample (6)	0	(110)					
Febr 13	10 AM					6	6		
" 26	10 AM					95	101		
			Many germ Lv for normality						
			Some root tips injured						
			star roots.						

(End)

(Finish)

Silver #2 Dry seed.

Experiment

CO₂ Dry ice 9 days

Start

Date	Time of day	Germ. time (days)	No.	Tips		%	Germination			No. of days
				No.	Cum.		No.	Cum.	%	
Dec 17	7AM	Into CO ₂ box, Dec 28 7AM out of box = 9 days								
Dec 28	7AM	All seeds in Petri dish watered and into 40° strat Sample ① = 0 days strat								
Dec 28	7AM	Sample ①	0	82	73%				⑥	
	29	9AM	1			0	0	0		
	31	10:30AM	3			0	0	0		
Jan 6	8AM		9			1	1	0%		

(End)

Jan 4	9AM	Sample ②	0	87	77%					⑦
5	3PM		1							
6	8AM		2							
7	10AM		3				3	3		left
9	10AM		5				0	3		
10	10AM		6				0	3		

(End)

4%

Jan 11	9:30A	Sample ③	0	104	93					⑭
12	8AM		1				0	0	0	
13	8AM		2				0	0	0	
30			19				44	44		
Febr 1	10AM		22	36			0	44		

Definite root tip injury. Note % normal more closely in next samples

(End)

CO₂ 9 days

Silver #2

Date	Time of day	Germ. time (days)	Tips			Germination			No. of days
			No.	Cum.	%	No.	Cum.	%	

stat.

Febr 3	8 AM	Sample (4)	0			Normal (But 50% or more germinated. Left for normality)	9	9	out to 15 mm	(37)
5	11 AM		2				7	16		
6	1 PM		3				21	37		

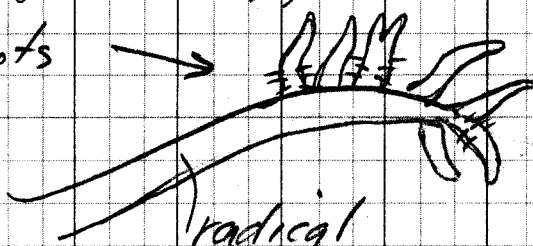
Summary

Note { 9 days @ CO₂ temp injurious to about 50% root tips
 But only about 10% of these seeds killed. The rest regenerated roots (star roots)
 Last

Febr 76	9 AM	Sample (5)	0			(179) (163) Actual	3	3	to 15 mm	(60)
Mar 2	9 AM		4		15% germ		36	39		
3	8 AM		5				5	44		
5	9 AM		7				50	94		
6	7 AM		8			star (branch roots) developing now	16	110		
7	7 AM		9				15	125		
8	7 AM		10				13	138		
10	7 AM					+ 16 sprout + 18 non germ	15	153		

Root tips damaged on 50% or more of seeds but roots regenerate as shown below

12	8 AM	Sample	0			+ 9 germ but died	7	160		
						Star roots		Branch roots with root hairs		



153
 16
 18

 187