

Plan Pt Seed Germination Test #102 Dec 18, 1978 ALH

Name of study Leach-Petri

Objective To determine The effect of seed coat materials (gelatinous substances etc) in controlling The availability of O_2 to The embryo in wet seeds

Test treatments 3 All carried out in Petri dishes except Protocol This soaking in jars

Regermination

1. ~~Regermination~~ materials from The seed coat rapidly by soaking The seeds in H_2O .

Note!

The treatments are color coded

Soak The seeds in H_2O for 24 hrs The first day of The test each day

The second day and for 3 days Thereafter soak The seeds for 1 hour then drain off The water and let The seeds stand exposed to The air for 2 hrs twice a day between 8 AM and 4 PM. Then soak from 4 PM to 8 AM the next day.

2. Leach

Soak The seeds for 24 hrs The first day of The test

The second day and every day thereafter during The test maintain a thin film of water ^{and exposed} under The seeds so materials from The seeds will be leached out, somewhat slowly and kept close around The seed.

3. Leach CK

With This treatment just enough H_2O will be supplied The seeds to effect conditioning of the seeds for germination with stratification but not so much That materials are leached from The seeds.

✓ This means The seeds will be leached of materials during The first few days of stratification



Loach-Petri study Cont'd

This test will be carried out with fruits as well as seeds

Seeds used { Wheeler 1974. Commercially cleaned
Fruits " " " washed 12/14/78

Materials & method The seed and fruits will be treated and germination in Petri dishes.

The treatments and stratification of The seeds & fruits will be carried out at 40°F Lab 7 Stead Bldg #2 refrigerator

Number of samples of each treatment 12

Germination Samples will be taken every 7 days approximately and The seeds germinated at 68°F

✓ Code 31J = stewing in juice ✓ starting with this sample Germ @ 65 (over)

for "7" days (after 7 days present treatment) after
draining off "excess" juice. Treat fruit the
same way. (3) cont'd

				<u>63</u>	
Jan 19	9 AM	4	5	68	
22	"	7	8	76	
24	2 PM	9 Into 40°	9	85	
25	8 AM	10 ↓	5	90	
Febr 21	8 AM	0 @ 68°	48	138	
23	"				
Mar 21	11 AM	0 out to 40 In 68	10	148	
Apr 5	1 PM	0 " "	11	158	
				5	
				<u>163</u>	End

← (End)²

#102

Bitterbrush Germination
-in Petri

Seed

Experiment LoachTreatment Stat 40°Location Lab 7 Box #2

Seed: Name _____

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (4) (238) (201V) 37NV+Treat (27)					
Jan 15	8AM	0	out to 68° 50% tips	0 0 0	Light mould
16	3PM	1	68 511 To 10mm Ave 3mm	55 55	
			Mouldy. Stirred up.		
17	9AM	2	"	9 64	9 more germ left
18	"	3	"	40 104	
19	"	4	"	8 112	Little mould
22	8AM	7	Little mould "Mud juice"	49 161	To 15mm Ave 10mm
Mar 15	7PM	0	In 68°	37 198	
				3	
				201	End 15 germ died
Sample (5) (245) (204V) 20NV					
Jan 22	8AM	0	out to 68 75% tips	3 3	Ave 2mm
			Heavy green mould above "juice" most seeds not stirred		
24	8AM	2	68 " " " " " " " "	24 27	Another 30± germ left
25	"	3	" " " " " " " "	10 37	" 20± " not stirred
26	8AM	4	" " " " " " " "	13 50	" 20± " " " "
29	9AM	7	Drained kept @ 68° 75 75	75 75	" 75± (End) " "
31	"	2	Heavy green mould 90% seeds	47 122	To 10mm Ave 10mm
Febr 1	8AM	3	Another 40± germ left for normalcy		
Febr 2	7AM	4	Heavy mould; not	54 176	see back this page
5		7	In 40°	3 179	
Sample (6) (236) (188V) 20NV					
Jan 26	9AM	0	out to 68 75% tips	10 10	To 8 Ave 3mm
			Most seeds by green mould 511		
179 29	"	3	" " " " " " " "	67 77	To 17 Ave 10mm
57			Hy level low. Seeds somewhat above juice. So better germination		
736			Water added.		
31	"	5	Heavy green mould above the 40 117	40 117	To 15 Ave 8mm
			95% seeds. Rots growing submerged in dark brown "juice"		
Febr 1	8A	6	" As on 1/31 511	27 144	To 7mm Ave 4mm
2	7AM	7	" " " " 511	16 160	(End)
5		10	" " " " " Drained	15 175	(End)
6	8AM			4 179	188 (End)

#102

Bitterbrush Germination

Seed

Experiment Loach Treatment _____ Location _____
 Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Jan 29	8AM	00	Sample (7) (250) (185V)	2360 42 NV	
			out to Tab B Mould above 16 10	To 8mm Ave 4	
			juice most seeds. Probably 20% are germ left		
31	"	2	Green mould most seeds 56 66	To 16mm Ave 10mm	
			Roots growing submerged in juice. Another 30-40 germ left for thermolysis		
Febr 1	"	3	" As on 1/31 511 24 90	To 11mm Ave 5mm	
2	7AM	4	" " " " 511 75 115	To 9mm Ave 4mm	
5	11AM	7.0	" " " " 511 Dried 147 162	To 20mm Ave 10mm	
			good to excellent many some curled.		
7	8AM	2	7 169	See cont. below	
Febr 5	11AM	00	Sample (8) (762) (196V)	26 germ dried 42 NV Transit	
			out to Tab B Mould 12 12	To 8 Ave 4mm	
			511 80% tips		
7	8AM	2	Hy mould 511 good-excell 35 47	To 16mm Ave 9mm	
191			10-15 more germ 1-3mm left		
26	8	7AM	3 511 24 71		
45	9	8AM	4 Growth roots in juice 24 95	Black juice 3/4 level	
267	12	8AM	70 To 15mm Ave 6mm Dried 60 155	" " " "	
			24 germ curl left 6 germ died left		
14	8AM	2	13 23 168		
20	11AM	0	6 germ died	191 196	
			Cont'd	End	
Febr 8	7AM	3.0	Sample (7) (250) (185V)	2360 65 42 NV	
			good		
9	8AM	4	21 germ died		
			17 excised lost viable?	12	
173				185	
21			17 excised	End	
51			34 NV		
245			21		
			34		
			8		
			63		

#102

Bitterbrush Germination

Seed

Experiment Leach

Treatment _____

Location _____

Seed: Name _____

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Febr 17	8AM	00	Sample (9) (287) (202) 85 NV + Treat out 40 to 68 H ₂ O mould tops 28 28 all seeds (green)	To 10mm Ave 4mm	
14	"	2	" " " " 40 68	To 8mm Ave 8mm	
15	"	3	All 50's 80% Little 40 108 seed surface exposed to air, so little or no mould	To 11mm Ave 6mm	
200 25 255 + 327	20	8	39 germ to 2mm Alt coat 60 168 left Drained	(End)	
23	"	0	@ 68 To 13mm Ave 6 20 188 out 40 to 68 326 Dried 30°F 196	Excellent	
April 12	10AM		@ 68 4 2004 → 202 (End)		
24	11AM				
Febr 21	9AM	00	Sample (10) (765) (730V) 35 NV + Treat out 40 to 68 H ₂ O mould "exposed" portions seed. 68 68 Dark purple → black Excellent - superb.	To 12mm Ave 8mm	
22	8AM	1	Ave 4mm to 9mm 29 97		
23	"	2	Germination submerged 86 183 in "juice" To 8mm Ave 2.5mm	Excellent - superb	
Mar 1	"	0	Drained To 6mm Ave 15mm 25 208 (End) Into 40 Root grew in "juice" this black thick with gelatinous matter.		
" 15	7PM	0	Arrows straight 19 227 327 (End)		
Mar 17	1PM	00	Sample (11) (165) (114V) 18 NV + Treat out 40 to 68 70 70 4 germ died Drained	To 16mm Ave 8mm	
13	9AM	1	@ 68 Excellent 35 105 29 germinated	Ave 6mm	
14	8AM	2	" 8 113		
15	"	3	" 1 114 (End)		
4 29 114 18 165			0 114 (End)		

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Bitterbrush Germination

Seed

Experiment Loach Treatment _____ Location _____
 Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Mar 21	9AM	00	Sample (12) (-106) (82V) 24NV + 1000		
			at 40 to 68° Drained 76 76		
			6 germ died To 20 Apr 12mm good		
26	"	5		4 80	End
				2	
				82	End
76					
6					
4					
20					
106					
Mar 26	9AM	00	Sample (13) (-141) (127V) 14NV		
			at 40 to 68° Drained. 103 103		
27	8AM	1	Super	19 122	Taken Apr 3mm
28	"	2		3 125	
				2	
				127	End
103					
19					
3					
12					
172					
2					
19					
14NV					
141					
Apr 9	10AM	00	Sample (14) (-166) (149V) 17NV		
			@ 40 to 42 curly but 135 135 + 5 germ died		
			all would grow. Drained and into 68		
" 10		1	@ 68 12NV out	4 139	
11		2		4 143	
				6	
				149	End
139					
15 test					
12 NV					
166					

#102 Finished Bitterbrush GerminationFruitExperiment Leach-Petri Treatment Shot 40° Location Lab 7 #2
Seed: Name Wheeler Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.	
1978						
Dec 20	11AM		Fruits treated the same as the seeds See seeds treatment			
			Sample (1) (176) (111V) 15NV			
Dec 26	10AM	00	out 40° In 68° No tips	0 0 0	51J straw color	
27	9AM	1	@68 " "	0 0 0	" "	
28	1PM	2	" " "	0 0 0	3/4 in mold " "	
29	8AM	3	" A few tips	0 0 0		
			(Darkening straw color. Mold on several fruits 51J			
Jan 2	8AM	7	@68 some mould. to 40°	0 0 0	Straw to brown	
Apr 5	7PM	0	" super.	101 101	(End)	
				10		
				111	(End)	
			Sample (2) (217) (167V) 50NV + Treat			
Jan 2	8AM	00	out 40° In 68° No tips	0 0 0	Straw No mould	
3	"	1	@68 30± tips	0 0 0		
4	"	2	" "	5 5		
			(51J) Straw to dark brown Touch of mould			
5	9AM	3	" " " "	27 27	No mould	
			(To 7mm Ave 2.5mm. Better growth than in seeds			
8	8AM	6	@68 to 11mm started. to 40°	4 31	Some mould.	
April 12	3PM	0	out 40° In 68° To 31°F	118 149	Excell. - super	
24	11AM	0	In 31	8 157		
			Sample (3) (241) (138V) 103NV + Treat			
Jan 8	8AM	00	out 40° In 68° No tips	0 0 0	Straw color	
			(No dark bodies No mould			
9	"	1	@68 Straw dark bodies	3 3	Left spot mould	
10	"	2	" " " "	29 32	To 3mm Ave 1.5mm	
			(No mould			
11	"	3	@68 Tan No mould	15 47	To 6mm	
12	"	4	" " " "	2 49		
15	"	70	" Dark tan " "	3 52	(End)	
			(Drained, washed and kept @ 68°F			
18	"	3		3 55		
19	"	4		3 58	over	

③ cont'd

km 72 { 9 AM In 48 9 67 (58)
 To 20mm Ave 10

Brown 16 would

Apr. 12 11 AM { out 40 In 68 21 88
 In 310

" 24 @ 68 after 31 40 178

Date 31

out 31 9/1
 138
 103 NU
 241

June 6 8A @ 68 10 138
 July 17 8A @ 68 0
 138

End

② cont'd Apr. 24

8 157

June 1 8AM out 31

157

" 6 " @ 68

8 { 165
 2
 167

End

167
 50
 217

#102

Bitterbrush Germination

Fruit

Experiment LeachTreatment Stat 40°Location Lab 7 Box #2

Seed: Name _____

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (4) (216) (100V) 116 NU+Tr					
Jan 15	8AM	0	out 40° In 68° 1-2% tips	0 0 0	
			Light to dark tan light mould		
16	3PM	1	@68° " " " "	14 14	To 6mm Ave 2mm
100 116 76	17	2	" " " " 16 mould	2 16	Excellent Healthy
18	"	3	" " " " " "	7 23	" "
19	"	4	" " " " " "	3 26	(End)
22	"	7	" " " " In 40° " "	7 33	To 15mm Ave 6mm
Apr. 12	11AM	0	out 40° In 68° In 31°F	53 86	
24	11AM		@68° Back 31°	14 100	
July 17	8AM		@68°	100	(End)
Sample (5) (736) (155) 81 NU+Tr					
Jan 22	8AM	0	out 40° In 68° 5% tips	0 0 0	
			Scattered mouldy clumps straw tan to dark tan		
24	"	2	@68° " " shrivel	56 56	To 8mm Ave 3mm
25	"	3	" " " " " "	9 65	To 6mm Ave 3mm
26	"	4	" " " " " "	0 65	
29	10AM	7	Mould on most drs	2 67	To 11mm Excellent
			Drained kept @68°		
31	9AM	2		4 71	To 7mm " "
Febr 1	8AM	3	H2O logged? Little mould	1 72	Brown
2	7AM	4	Brown No mould	5 77	
3	11AM	7	Sample (6) (213) (118V) 95 NU+Tr	4 81	(over)
Jan 26	9AM	0	out 40° In 68° 10% tips	0 0 0	
			Scat patches mould Light tan		
29	10AM	3	Tan Mod. mould; all. Excl.	72 72	To 10mm Ave 4mm
30	1PM	4		- -	
31	9AM	5	" " " " " "	4 76	To 6mm Ave 3mm
Febr 1	8AM	6	H2O logged definitely	0 76	50% submerged drs
2	"	7	About 2 to 1mm	1 - 76	
5	11AM	10	Drained		To 3mm Ave 2
7	8AM	2	Excellent	2 78	To 13mm
8	7AM	3	"	9 87	To 10mm Ave 6
9	8AM	4	"	3 90	(over)

(6) Cont'd

Febr 12	7 AM	In 70°	Excellent	5	95
Apr 12	1 PM	out 40°	In 31° F	6	101
24	"	@ 68	In 31°	17	118
July 17	1 8 AM	@ 68			$\frac{0}{118}$

(End)

118
95

713

(5) Cont'd carry over → 4 81

April 12	11 AM	out 40	In 68	In 31° F	54	135
" 24	"	@ 68	Back 31°		20	155
July 17	1 8 AM	@ 68				$\frac{0}{155}$

(End)

155
81

736

#102

Bitterbrush Germination

Fruit

Experiment Loach Treatment _____ Location _____

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Jan 29	8AM	0.0	Sample (7) (757) (15BV) 99NU+Tr. put 40 In 68 50% tips 0 0 Had mould throughout Jan		
Feb 1	9AM	2	Had to keep mould "Brown"	20 20	To 14mm Ave 7mm
2	8AM	3	" " " " "	5 25	To 10mm Ave 3mm
5	7AM	4	About 6 to 1mm left	3 28	To 3mm
5	11AM	7.0	Drained	7 35	To 3mm Ave 1.5
7	8AM	2	Excellent	10 45	To 11mm Ave 7mm
8	7AM	3	"	10 55	
9	8AM	4	" Dark brown	5 60	Light mould.
12	7AM	7	Info 48 10 70		(over)
Febr 5	11AM	0.0	Sample (8) (737) (131V) 106NU+Tr. put 40 In 68 Left 10 10 To 2mm Ave 1		
7	8AM	2	68 Excellent 511 34 44		To 17mm Ave 7mm
8	7AM	3	Have juice Excellent	17 61	To 10mm Ave 5mm
9	8AM	4	Good Fruits brown	4 65	No mould 3/4 + level
12	7AM	7.0	Drained.	10 75	Left, curled
14	8AM	2		11 86	
20	11AM	8	Info 40 16 102		
April 12	1PM	0	put 40 In 31 (31°F)	24 126	
24	"		68 In 31 4 130		(over)
Febr 12	9AM	0	Sample (9) (220) (65V) +155NU+Tr. put 40 In 68 Brown 10 10 To 4mm Ave 2mm		
14	"		patch mould 511		
15	"		No mould " 11 21		To 5mm
65			(511 80%+ Most fruits 2 23		To 4mm
155			" submerged" little corrosion so growth, & no mould		
220			80%+ tips Brown Hx0 longer		
20	"		Drained. 1 24		
23	"	0	68 To 3mm Ave 1.5 10 34		Left
April 12	2PM	0	put 40 In 31 (31°F)	24 58	
24	1PM	0	68 In 31 7 65		
July 17	8AM	1	68 0 65 (End)		

⑦ Cont'd

		Carry over	10	70	
April	12	1PM	out 40 In <u>31°F</u>	66	136
"	24	"	@68 In 31	12	148
July	17	12AM	@68	{ 7	155
				{ 3	158

$$\begin{array}{r} 155 \\ 102 \\ \hline 257 \end{array}$$

$$\begin{array}{r} 158 \\ 0 \\ \hline 158 \end{array}$$

End

⑧ Cont'd

July 17 8AM 1 @68

$$\begin{array}{r} 131 \\ 106 \\ \hline 237 \end{array}$$

$$\begin{array}{r} 131 \\ 0 \\ \hline 131 \end{array}$$

End

#102

Bitterbrush Germination

Fruit

Experiment LeachTreatment Stat 40

Location _____

Seed: Name _____

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (10) (240) (125V) 115NV + 7K					
Febr. 21	9:AM	0	Stat 40 In 68° Brown	30 30	To 9mm Ave 4mm
			{ 2 patches mould		
22	8AM	1	To 7mm Ave 2.5mm	20 50	
23	"	2	To 4mm Ave 2.0mm	10 60	
Mar 1	"	8	Brown To 28mm Ave	14 74	great curly (End)
			{ Drained Into 40°		
15	2PM		Dark brown, excellent	78 102	
Apr. 12	2PM	0	Stat 40 In 31°F Super	19 121	
24	1PM		66E In 31	4 125	
July 17	8AM	1	66E	175	(End)
Sample (11) (105) (86V) 19NV + 19NV					
Mar 12	1PM	0	Stat 40 In 68° Drained	74 74	To 75mm Ave Brown
			{ Brown superb		
13	9AM	1		7 81	
14	8AM	2		5 86	
15	"	3	66E	0 86	(End)
				0	
				86	(End)
				19	
				105	
Sample (12) (104) (79V) 25NV					
Mar 21	9AM	0	Stat 40 In 68° Drained	70 70	To 40 Ave 20mm
			{ Super spotty mould above liquid green and white		
			{ Dark brown 14 NV		20 left in dish
26	"	5		7 77	(End)
			11 NV	2	
				79	(End)
				70	
				34	
				104	

Box #2

%.

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
Mar 76	9AM	0	Sample 13 (88%) (67V)	21 NV + Treat	
			Set 40° In 68° Drained To 20 Ave 8mm Mold mould	51 51	Superb
	8AM	1		3 54	
Apr 30	9AM	4	super	3 57	
Apr 2	8AM	7	"	2 59	(End)
				8	
				67	(End)
				59	
				29	
				88	
			Last		
			Sample 14 (106%) (58V)	48 NV + Tr.	
Apr. 9	10AM	0	@ 40° To 20mm Exroll.	43 43	
" 16	8AM		"	5 48	
" 25	10AM		" 1-6mm super	8 53	
			Hvy green mould on buds above "juice"		
May 7	9AM		@ 40° " " " "	" "	
			To 10 Ave 7mm	3 56	Super, straight
" 15	3PM			0 56	
" 18	8AM		Set 40 To 68° still on →	0 56	
			Drained Hvy green mould on fruits above "juice"		
21	"		@ 68 Drained	0 56	
23	8AM		@ 68	0 56	
				2	
				58	(End)
				56	
				50	

#102

Finished

Bitterbrush Germination

-in Petri

Seed

Experiment PreleachTreatment Short 40°Location Lab 7 #2Seed: Name WhackerSource Com. Washon

Collection date _____

Viability: By excise

%. From this test

%.

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1978					
Dec 19	11AM		Seeds into 24hr scale kept at 40°F		
20-25			Seeds drained & rescaled each day as described in plan. Kept @ 40°		
			Sample (1) (214) (184V) $\frac{214V}{960} = 30$		
Dec 26	10AM	00	out 40° 5/68	0 0 0	No mould. (7)
27	9AM	1	@68 50% tips	0 0 0	" "
28	1PM	2	" To 7mm Ave 3mm	10 10	
29	8AM	3	" To 3mm	4 14	
			Seeds reddish to dark purple Not black No mould		
Jan 2	8AM	7	@68 In 40°	3 17	(End) Some mould
Feb 23	9AM	0	" Excellent	147 164	164
			9 germ died	20	50
				184	(End) 214
1979					
			Sample (2) (275) (183V) $\frac{13NV}{296} \text{ died}$		(14)
Jan 2	8AM	0 0	out 40° In 68	0 0 0	No mould Seed red
3	"	1	@68 30 to 40%	30 30	purple
4	"	2	" To 11mm Ave 4mm	62 92	
			Supers. Seed red-purple. No mould		
5	9AM	3	" No mould " "	18 110	Ave 2mm 183
8	8AM	6	@68 18 germ died In 40°	8 118	(End) 275
Mar 23	"	0	out 40° In 68	62 180	
118			11 germ died	3	
18			13NV	183	(End)
			Sample (3) (183) (153V) 16 germ died 14 NV		(20)
Jan 8	8AM	0 0	out 40° In 68° 50% tips	0 0 0	Touch mould
			Root to dark purple		
9	8AM	1	@68 To 3mm 80% tips	65 65	Super All left
			No mould, Root to dark purple		
10	"	2	@68 " " " " "	67 132	Super All out
			To 15mm Ave 6mm		
11	"	3	@68 To 2mm	11 143	No mould
145	12	4	"	2 145	
1560	15	7	" 15 germ died	0 145	(End)
73			23 excised. 8V 15NV	8	
183				153	(End)

#102

Bitterbrush Germination

Seed

Experiment Pre-leach - in Petri Treatment Short 40° - in Petri Location Lab 7 Box #2
 Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Jan 15	8AM	00	Sample (4) (243) (192) 0 0 0	24 Germ died 27 NV Bulging (27)	
			put 40° In 68 Petri tips		
			No mould. Red to dark purple		
16	3PM	1	(265° Red-dark purple 140 140	To 10mm Ave 7mm	
			No mould.		
17	8AM	2	" " " " 40 180		
18	"	3	22 left germ but normal? - -		183
19	"	4	22 germ died 3 183		36
22	"	7	0 183	(End)	219
25	"	10	2 germ died Remaining mouldy 0 183		24
			9		243
			Sample (5) (2) (188)	192 (End)	
Jan 22	8AM	00	put 40° In 68 Red-dark purple 12 12	22 germ died 21 NV To 3mm Ave 1.5mm	(34)
			No mould clean		
24	"	2	(268° To 17 Ave 10mm 100 112	Rad-purple No mould	
			" To 6 Ave 3mm 80 2 Left	" " stunted "	
			" germ died. No germ (tips) 37 dish	" " " " "	
			Pre-leaching definitely not conducive to optimum germination. Too much H ₂ O? Not enough O ₂ ? to embryo.		
25	8AM	3	Those stunted some; cur 1362 174	To 14mm Ave 7mm	
			Abnormal		
26		4	" " 55 left in dish 2 176		
29		7	Abn. but would grow 8 184	(End)	
			22 germ died 4		
			21 NV by excise 188	(End)	
			188		
174			43		
55			231		
229					

#102

Bitterbrush Germination

Seed

Experiment Pre leach Treatment _____ Location _____

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (6) (739) (201V) 8 germ died 30 NV					
Jan 26	9AM	00	at 40 In 68 spotsy mould 24 24	To 12mm Ave 4	
			Red dark purple Excellent		
29	9AM	3	" " " " 168 192	To 25 Ave 15	
31	8AM	5	8 germ died 1 193	End	
			30 NV 8	201	End
193	192				
38	41				
8	739				
339					
Sample (7) (225) (187) 38 G died NV and treat					
Jan 29	8AM	00	at 40 In 68 One spot 54 54	To 11 Ave 4	
			at mould Red purple Excell		
31	"	7	Light mould " " Excell 90 144	To 16 Ave 8mm	
			50 germ left for viability		
			13 bulging tips left		
			18 No germ "		
144					
50	Febr 1	"	3 24 168		
13					
18	5	"	7 21 germ died 16 184	End	
225			17 NV-treat 3	187	End
Sample (8) (287) (245V) 42 13 germ died 29 NV-treat					
Febr 5	11AM	00	at 40 In 68° Excellent 68 68	To 15 Ave 8mm (48)	
7	7AM	2	Super. straight mould 160 228	To 20 Ave 10mm	
8	8AM	3	" mod mould 14 242	To 12 Ave 6mm	
9	8AM	4	13 germ died 0 242	End	
			29 NV-treat 3	245	End
245					
13					
29					
287					

#102

Bitterbrush Germination

Seed

Experiment Pre leach Treatment _____ Location _____

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
------	-------------	-------------------	---------------	----------------------------	-------------------

Febr 12	8AM	00	Sample (9) (215) (184V)	100	100	16 germ died 15 Dead N.V. (56)
14	7AM	2	Excellent. A few glassy " " (46 germ curl)	35	135	To 20 Ave 9mm To 20 Ave 9mm
135			{ 15 tips			
46			{ 19 not germ			
15	8AM	3	{ germ curl	10	145	
19			{ tips	2	147	
215			{ not germ	0	147	
20	9AM	8	@ 68 Tendency adven - 34	181		End
			fairer growth. Fair to good but would grow			
			16 germ died			

$$\frac{3}{184}$$

End

Febr. 21	9AM	0	Sample (10) (197) (25)	100	100	13 germ died 12 NV
			Spot 40° to 60° To 30mm Ave 10			Excellent to superb.
22	8AM	2	(+11 germ left. Some curl glassy)	51	151	
23	8AM	3	To 12 Ave 3mm Excell.	19	170	
Mar 1		8	Good to excell.	2	172	172 End
			13 germ died			
			12 NV by excise			
				0		
				172		172 End

$$\frac{170}{21} \\ 191$$

#102

Bitterbrush Germination

Seed

Experiment

Pre leach

Treatment

Start 40° Potri

Location

Seed: Name

Source

Collection date

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
------	-------------	-------------------	---------------	----------------------------	-------------------

1979

Fehr	76	9AM	00	Sample (11) (202) (168V) 120 170	22 NV + 1 trait 12 germ died To 35mm Ave Room
				out 40° In 68°	
				Purple superb.	
				60 tips 26 No growth Three left some seeds "dry"	
				Prob. would have germinated if "warmer"	
				→ 41 161	Excellent
Mar	1	8AM	3		168
"	2	1PM	4	Into 40°	3 164
"	15	2PM	0	out 40° In 68° 12 germinated	4 168 (End) 202

Last. In start

Mar.	12	11AM	05	Sample (12) (204) (188V) 172 172	16 NV G Died To 4mm Ave 25
				out 40°	
				Superb.	
				4 germinated	
				12 NV	
				16 Extreme bulging tips to 1mm About to break through	
				32	
				172	
				204	No model
	21	9AM		@ 40°	15 187
	23	"		"	1 188

Super
Super

Finished

#102

Bitterbrush Germination

Fruit

Experiment Preleach - PetriTreatment Strat 40°Location Lab 7 #2Seed: Name Wheeler

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1978					
Dec 20	11AM		Fruits treated the same as the seeds. See seeds treatment		
Dec 26	10AM	00	Sample (1) (100) (76V) 24HV out 40° In 68° No tips	0 0 0	Fruit stem color (2)
27	9AM	1	@68 " "	0 0 0	" " "
28	1PM	2	" " "	0 0 0	
29	8AM	3	" To 5mm	1 1	No mould " "
Jan 2	8AM	7	" To 40°	0 1	Some mould (End)
Kpr 5	2PM	0	" Super super	70 71	
				5	
				76	(End)
1979					
Jan 2	8AM	00	Sample (2) (153) (114V) 39 HV + treat out 40° In 68°	0 0 0	stem color
3	"	1	@68 2 or 3 tips	0 0 0	No mould
4	"	2	" To 10mm Ave 2.5mm	19 19	
5	"	3	Superb. Stem to dark brown body.	9 78	A few mouldy To 6mm Ave 3mm
8	"	6	No mould. Fruits previously stirred around. @68 Some mould In 40°	7 30	(End)
Mar 26	9AM	0	@68 Super Arrow straight	79 109	To 25mm
30	"	4	In 40°	1 110	
April 12	1PM	0	out 40° In 31°F	2 112	(over)
Jan 8	8AM	00	Sample (3) (184) (139V) 45 NV + treat out 40° In 68° No tips	0 0 0	Tan; dark borders
9	"	1	@68 35% "	12 12	Super All 100t
10	"	2	Tan spotty mould, light @68 To 15mm	35 47	Super
11	"	3	3 fruits mouldy clump. Others no mould. @68 To 10mm	10 57	" No mould
12	"	4	"	5 62	
15	"	7	" In 40°	0 62	(End)
Mar 26	9AM	0	1 gram died	72 134	Arrow to 27 Ave 16mm
30	"	4	In 40° Super	3 137	
April 12	1PM	0	out 40° In 31°F	1 138	

#102

Bitterbrush Germination

-in Petri

Fruit

Experiment Pre leach Treatment Start 40° Location Lab 7 Box #2

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Jan 15	8AM	00	Sample (4) (177) (142V) 35HV+ treat out 40° In 68° 1/6 tips 0 0 0 Dark tan Light mould		
16	3PM	1	@ 68° No mould Dark tan	30 30	To 10mm Ave 4mm
17	9AM	2	"(only 18 hrs) " "	2 32	
14x 18	"	3	" " " "	14 46	To 8mm Ave 4mm
35 19	"	4	" " " "	8 54	To 9mm Ave 5mm
177 22	8AM	7	" " In 40° "	10 64	To 20mm Ave 10mm
Apr 11	9AM	0	out 40 In 68	- -	(End)
12	"	1	@ 68° In (31°F)	67 131	Super
24	11AM	0	@ 68° In 31°	11 142	142 (End)
Jan 22	8AM	00	Sample (5) (179) (125V) 54HV+ treat out 40 In 68° 5/6 tips 0 0 0 3 mould clumps. Otherwise no mould Dark tan		
24	8AM	2	To 17 Ave 10mm Tan	39 39	No mould H. plugged!
25	"	3	To 11 Ave 6 " "	20 59	Supers.
26	"	4	To 10mm Ave 4mm "	10 69	"
29	9AM	7	To 16mm Ave 10 glossy H. plugged Brown In 40° Note Box down to 0°C. Fruit roots may be glossy	8 77	Abnormal (End)
Mar 16	1PM	0	because frozen →	18 95 30 125	(End)
Jan 26	9AM	00	Sample (6) (180) (139V) 41HV+ treat out 40 In 68 12 to 15 tips 1 1 Tan No mould		
29	"	3	Tan dark brown glossy These frozen after spraying. Red ring failure. Germination count old however. Effect on remaining seeds??	92 93	To 20mm Ave 12mm
31	8AM	5	Freezing no effect	2 95	To 13 Excellent
Febr 1	"	6		1 96	
2	"	7		3 99	
5	10AM	10	Excellent In 40°	2 101	(End)
Mar 16	1PM	0	out 40 In 68	11 112 27 139	(End)

#102

Bitterbrush Germination

#102

Fruit

Experiment Preleach

Treatment _____

Location _____

Seed: Name _____

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Jan 29	8AM	0	Sample (7) (167) (131V) 36NV out to In 68 Scot Light mold 3 3 To 4 Ave 3mm Tan superb.		
31	8AM	2	" superb " " 66 69 About 20 more germ; lost for normality.		To 20mm Ave 12mm
Febr. 1	8AM	3	Super 29 98		
2	"	4	Excellent 7 105		
5	10AM	7	" In 40° 7 112		End
Mar 16	1PM	0	out to In 68 12 124		
			7 131		End
Febr 5	11AM	0	Sample (8) (189) (149V) 40NV + treat out to In 68 Excellent 12 12 To 6mm Ave 2mm		
7		2	@ 68 No mold Tan-brown 119 131 To 28mm Ave 15mm		
149 40 8	8AM	3	Super, super straight. Superior growth to seeds. Heat effect? " " " 3 134		
189 9	8AM	4	" " " 3 137		
12	7AM	7	" " " In 40° 3 140		End
Apr 11	9AM	0	out to In 68 — —		
11 12	"	1	@ 68 In 31°F 9 149		
			0 149		End
Febr 12	8AM	0	Sample (9) (151) (172V) 29NV + Excellent - superb 33 33 To 12mm Ave 4mm		
			Tan-brown No mold.		
14	7AM	2	" " " " 62 95 To 20mm Ave 12mm		
15	8AM	3	Ex to superb " " " " 10 105		
20	10AM	8	" In 40 " Light m. 6 111		End
Apr 5	2PM	0	6 117		
			5 122		End

#102

Bitterbrush Germination

Fruit

Experiment Pre leach Treatment Shat 40° Location _____
 Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (10) (180) (143V) 37NV					
Febr 21	9AM	0	Set 40 In 68 Tan-brown 94 94		
			Superb To 2mm Ave Tan 2-3 spots mould.		
22	8AM	1	" To 10mm Ave brown 34 178		
			Rate root growth much more rapid in fruits than seeds. Better aeration? Set Seeds in fruits "charged" more heavily with O ₂ ??		
23	8AM	2	Superb.	4 132	
Mar 1	"	8	Superior Into 40°	4 136	End
Apr 5	1PM	0	at 40°	2 138	End
Sample (11) (153) (116V) 37NV + treat					
Febr 26	9AM	0	Set 40 In 68 Superior 68 68		To 3mm Ave 12mm
			Brown Arrow straight 80% tips		
Mar 1	8AM	3	" superior " "	36 104	To 3mm Ave 15mm
" 2	1PM	4	Into 40	8 112	
" 21	11AM	0	at 40 In 68	3 115	
Apr. 12	1PM	0	at 40 In 31°F	0 115	
May 1	10AM	0		1 116	End
Last In shat					
Sample (12) (147) (116V) 31NV + treat					
Mar 12	11AM	0	At 40° Super	87 87	To 4mm Ave 20mm
21	9AM	0	@ 40°	25 107	To 10 Ave 5mm
26	"	"	"	4 111	To 2mm
Apr 2	8AM	"	"	3 114	
4	8AM	"	"	2 116	End
				0 116	
				116	
				31	
				147	

#102

Bitterbrush Germination
-in Petri

Fruit from Petri

Experiment Leach-Petri Treatment Stat 40° Location Lab 7 #2Seed: Name Wheeler Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1978					
Dec 20	11AM		Fruits treated the same as the seeds see seeds treatment		
Dec 26	10AM	0	Sample (1) (109) (95V) 14NV out 40° In 68° No tips 0 0 0 straw color (6)		
			Fruit appears dry on outside. Seed including embryo soft with H ₂ O. Seed coat dark		
27	9AM	1	(268) No tips 0 0 0		
28	8AM	2	" " " 0 0 0		
29	8AM	3	" " " 0 0 0		Darkening straw color
			Mould on a few fruits		
Jan 2	8AM	7	(268) In 40° 0 0 0		Hyg mould (gram)
Apr 5	2PM	0	" out 40° super super 91 91		Stems to brown
			Sample (2) (167) (142V) 25NV + (13)		
Jan 2	8AM	0	out 40° In 68° 0 0 0		straw No mould
3	8AM	1	(268) 0 0 0		" " "
4	"	2	" 2mm & 1mm 2 2		straw " "
5	9AM	3	" 3mm 1 3		" " "
			Fruits on "wet outside" seed coat softened; precy.		
8	8AM	6	(268) Tan dark bodies 1 4		End Light-mold "
Apr 5	2PM	0	" 132 136		
			6		
			142		End
Jan 8	8AM	0	Sample (3) (200) (180V) 20NV out 40° In 68° No tips 0 0 0 straw color (19)		
			No dark bodies. No mould		
9	"	1	(268) straw-light tan 0 0 0		
10	"	2	" " " 3 3		Med. mould:
11	"	3	" " tan 2 5		" "
12	"	4	" 1 6		
15	"	5	" 3 9		" " End
Apr 5	2PM	0	" 149 158		
			22		
			180		End

#102

Bitterbrush Germination

- in Petri

Fruit - germ Petr.

Experiment Leach CK Treatment Shat 40 Location Lab 7 Box #2
 Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (4) (207) (133V) 74 NV+Tr					
Jan 15	8AM	00	out 40° In 68° No tips	0 0 0	(76)
			shw color Touch mould.		
16	4PM	1	Tan Med. "	8 8	To 3mm Ave 2mm
17	9AM	2	668 Tan dark brown	42 50	Med. mould.
18	"	3	" " " "	5 55	" "
19	"	4	" " " "	4 59	" "
			Hvy fell bleeding, cumulation in dish		
22	"	7	Med-Hvy Mould In 40°	7 66	To 15 Ave 8
Apr 12	11AM	0	out 40° In 68° In (31°F)	43 109	
24	1PM		668 In 31°	9 118	(over)
Sample (5) (211) (154V) 57 NV+Tr					
Jan 22	8AM	00	out 40° In 68° 5% tips	0 0 0	
			Light to med mould most fruits		
24	"	2	668 Med mould Tan brown	127 177	To 16 Ave 11mm
			Germ excellent but not as good as seeds. Husk restricts germination?		
25	"	3	Super Hvy mould 80% fruits	4 131	To 12mm Ave 8mm
26	"	4	" " " " "	1 132	To 10mm (End)
29	11AM	7	Very hvy mould In 40°	1 132	Hvy gelatin deposit.
Mar 16	2PM	6	out 40° In 68°	7 139	
				134	(End)
Sample (6) (734) (114V) 170 NV+Tr					
Jan 26	9AM	00	out 40° In 68° Tan tips?	0 0 0	
			Med-hvy green mould 80% fruits		
29	11AM	3	Light mould Brown	56 56	To 10 Ave 4 glassy?
			Several of these glassy because froze - reding failure		
30	1PM	4		6 62	
31	8AM	5	Scat Light mould Several	15 77	15+ germ but lost for germ-variability
Febr 1	"	6	" " " " "	8 70	" " " "
2	"	7	" " " " "	9 79	" " " "
5	1PM	10	In 40° Med mould	14 93	
Apr 12	11AM	0	all fruit's Hvy mould	8 101	(over)
			In 31°F		

#102

Bitterbrush Germination

Fruit

Experiment Loach CK Treatment _____ Location _____

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (7) (177) (117V) 60 NV + TV					
Jan 29	8AM	00	out 40 In 68 20% tips	0 0	
			Mod green mould most fruits Tan		
31	9AM	2	Light " " brown	47 47	To 12 Ave 6mm
			Excellent thinner 40° germ left		
Febr 1	8AM	3	1-2 logged	73 70	
2	"	4	10-12 to 1mm left	11 81	(End)
3	"	7	Mod mould all fruits	12 93	To 20mm Ave 10
			Into 40°		
April 12	11AM	0	out 40 In 68 (In 31°F)	8 101	Hy mould all.
24	1PM	0	268 In 31	11 112	(over)
Sample (8) (167) (142V) 25NV					
Febr 5	1PM	00	out 40 In 68 Mod to Hy mould	7 7	To 6mm Ave 2mm
7	8AM	2	Could not locate dish		
7	1PM	2	Dish in 40° by mistake now out	102 109	Tan to brown
			super		
8	8AM	3	Excellent - super	19 128	
9	8AM	4	" "	4 132	Light mould All fruits
12	8AM	7	Into 40°	3 135	Mod Hy (End)
Apr 12	11AM	0	out 40 In 68	7 142	
				0	
				142	(End)
Sample (9) (184) (134V) 50NV + thant					
Febr 12	8AM	00	out 40 In 68 Hy mould	62 62	To 14mm Ave 5mm
			all fruits Superb Tan-brown		
14	"	2	Hy mould all Superb	61 123	To 20 Ave 17mm
15	7AM	3	" " " "	4 127	
20	11AM	8	" " " "	2 129	(End)
Apr. 12	2PM	0	out 40 In (31°F)	5 134	(End)

#102 Finishced Bitterbrush Germination

Fruit

Experiment Leach ck Treatment Shed 40° Location _____
Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Febr 21	10AM	00	Sample (10) (185) (143V) 42NV + Treat		
			out 40 In 68 Hy mould 90 90 To 22mm Ave 10mm		
			9% fruits Tan-brown superb		
22	8AM	1	To 11mm Ave 6mm 33 113		superior granib to seed's
23	"	2	To 16mm Ave 8mm 10 133		super (End)
Mar 21	11AM	0	out 40 In 68° 10 143		"
			42NV Excise 0		
			143		End
Febr 26	11AM	00	Sample (11) (164) (135V) 29NV		
			out 40 In 68 Super 107 107 Hy black mould		
			Brown 30% remaining have tips To 5mm Ave 15mm		
Mar 1	8AM	3	"Superb To 16mm Ave 10mm 126 133		Med-Hy mould
" 2	1PM	4	Into 40° 7 135		(End)
April 12	11AM	0	out 40 In 68 (In 31°F) 0		(End)
			135		
			29		
			164		
Mar 12	11AM	00	Sample (17) (184) (141V) 43NV + treat		
			@ 40° Med hy mould 136 136 Hy mould		
			Shawn to brown color Arrow straight Super To 30mm Ave 15mm		
15	8AM	2	0 136		
21	9AM		@ 40 Med model 4 140		
			1 141		(End) (End)
			141		
			43		
			184		
			Finishced		

#102

Bitterbrush Germination
-10 Patri

(Seed) germ Patri

Experiment black-Patri Treatment Shat 40° Location Lab 7 #2Seed: Name Whecker Source _____ Collection date _____

com. washed

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1978					
Dec 19	11 AM		Seeds treated as described in plan kept @ 40°		
" 26	10 AM	0 0	Sample (1) (274) (268V) 6NV out 40° In 68° 0 0 0	(7)	
			Seed dark with H ₂ O. Prob. about saturated but not bleeding		
27	9 AM	1	@ 68° 25% tips	0 0 0	
28	1 PM	2	" To 11 mm Ave 6 mm	18 18	Superb No mould.
29	8 AM	3	" To 2 mm	1 19	
			" Seeds dark reddish purple. Too "not" No mould. Changed to dry filter paper. Some weeping, discoloration paper.		
Jan 2	8 AM	7	" In 40°	1 20	
Febr 7	3 PM	0	228 248 268 (End)		
			Sample (2) (287) (275) 12NV		
Jan 7	8 AM	0 0	out 40° In 68° 25% tips	0 0 0	(14)
3	8 AM	1	@ 68° 60±	60 60	
4	"	2	" To 15 mm Ave 9 mm	100 160	Super
			Sticky. Dark purple No mould. Definitely this treatment the best. Outstanding		
5	9 AM	3	To 15 mm Ave 9 mm Super	17 167	
			Seeds stick with moisture. No bleeding. Dark purple sticky		
" 8	8 AM	6	@ 68 In 40	0 167	" (End)
Apr 5	2 PM	0	out 40 @ 68 super	104 271	
			4 275 (End)		
			Sample (3) (237) (210V) 27NV		
Jan 8	8 AM	0	out 40° In 68° 50% tips	0 0 0	(20)
			Dark purple to black sticky clustered Light mould.		
9	"	1	@ 68 " " "	85 85	All lost. Super
10	"	2	" To 25 mm Ave 12 mm	82 167	Super super No mould
11	"	3	"	2 169	
12	"	4	"	1 170	
15	"	7	" In 40°	2 172	(End)
Febr 21	9 AM	0	"	15 187	
			23		
			210		(End)
169	187				
60	44				
232	236				

#102

Bitterbrush Germination

-in Petri

Seed germ Petri

Experiment Leach CKTreatment Shat 40°Location Lab 7 Box #2

Seed: Name _____

Source _____

Collection date _____

Viability: By excise

%. From this test

%

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Sample (4) (209) (184V) 25 NV Jan 15 8AM 00 Sat 40° In 68° 80% tips 0 0 0 60% seeds light mould Red to dark purple Seeds 30% shiny moist No bleeding (Seeds) Filter paper wetted					
16	4PM	1	68° Most seed with mod. mould	142 142	To 13mm Ave 6mm Super
164	17	9AM	2	" " "	12 154
45	18	"	3	" " "	4 158
209	19	"	4	" Very "	2 160
22	"	7	" " " most seeds	4 164	Excellent To 5mm " (End)
75			See below (4) Cont'd		
Sample (5) (265) (241V) 24 NV Jan 22 8AM 00 Sat 40° In 68° Dark purple-black 4 4 Light mould most seeds. Shiny, sticky 268 Super super purple 216 220 To 78 Ave 18mm Arrows straight roots. Absolutely best moisture operation conditions for germs (in petri dishes) Seed root materials (sticky) form hard clumping compounds when dry binding seeds together					
220	24		2	216 220	To 78 Ave 18mm
45					
265	25	8AM	3	2 222	3mm
	26	"	4	2 224	(End)
				17	(241) (End)
Sample (4) Cont'd Jan 25 9AM 10 20 184 (End)					
224			224		
41	41		17		
265	17		241		
	24				

#102

Bitterbrush Germination

Seed

Experiment Leachck Treatment _____ Location _____

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979	12				
	76				
	38				
Sample (6) (219) (201V) 18 NV					
Jan 26	9 AM	00	Int 40° to 68° 90% tips	10 10	To 8 Ave 4mm (38)
			Light to mod mould 80% seeds Dark purple		Excellent
			Clumped seed masses		
29	11 AM	3	Dark purple 16 mould Excell.	153 163	To 20 Ave 12
30	1 PM	4		5 168	To 8mm
31	8 AM	5	" " " "	7 175	To 6mm
163 Feb 1	"	6	" " Mould on NV seeds	5 180	
56	"	7		2 182	(End)
219				19	
Sample (7) (272) (247V) 25 NV + treat					
Jan 29	8 AM	00	Int 40° to 68°	14 14	To 15 Ave 4mm
			Light-mold mould most seeds		
31	9 AM	2	" mould " " "	150 164	To 20 Ave 12mm
			washed drained.		
Feb 1	8 AM	3	" " " "	16 180	To 13mm Ave 8mm
2	"	4		2 182	(End)
182	5	7	Int 40° Super	9 191	To 35mm Ave 10mm
9				34 225	
27 Mar 16	1 PM	0		22	
				247	(End)
Sample (8) (254) (734V) 20 NV					
Feb 5	11 AM	00	Int 40° to 68° Very mould most	25 25	To 3mm Ave 12mm
			seeds Superb.	167 192	
7	8 AM	2	Excell- "	167 192	To 20 Ave 10mm
8	7 AM	3	superb.	21 213	To 12 Ave 5"
9	8 AM	4		2 215	
12	8 AM	7		3 218	(End)
215				16	
39	218			234	(End)
254	36				
254					

#102

Bitterbrush Germination

Seed

Experiment Leach Ck Treatment _____ Location _____

Seed: Name _____ Source _____ Collection date _____

Viability: By excise % From this test %

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Febr 12	8AM	00	Sample (9) (238) (209) 29 germinal NU		
			Very mould all seeds 55 55		To 2mm Ave 9mm
			out 40 In 60 Super		
14	"	2	" " " " " 139 194		To 2mm Ave 10mm
15	7AM	3	" " " " " Black 9 203		To 2mm Ave 5mm
20	11AM	8	" " " " " 2 205		
			4		
			209		End
Febr 21	9AM	00	Sample (10) (256) (233) 23 13 germinal 10 NU		
			out 40 In 68 Dark purple - 80 80		
			Black Super Super To 4mm Ave 20mm Arrow straight		
22	8AM		Ave 4mm 68 148		
23	"		To 16 Ave 8mm 52 200 Super.		
Mar 1	"		To 40 6 206 " (End)		
			13 germinal By excise 27		
			10 NU 233 (End)		
Febr 26	11AM	00	Sample (11) (199) (179) 20 NU		
			out 40 In 68 Dark purple 100 100		To 40 Ave 15mm
			85% remaining are tips Superior arrow straight		
			Prob. dish not kept moist enough for max growth		
Mar 1	8AM	3	Excellent 72 172		To 15mm Ave 9mm
" 2	1PM	4	Into 40 7 179		
			0		
			179		End
			179		
			20		
			199		

Segg

Viability: By excise %. From this test %.

Date	Time of Day	Germ. time (days)	Tips (No) (%)	Germination (No) (Cum) (%)	No of Days Treat.
1979					
Mar 12	11 AM	0	Sample (17) (166) (150v) 5 germ died = 16 11 NV 9 v? left	141 141	Excellent
15	8 AM		@ 40°	9 150	End
					Finished
		0	Sample () ()		
		0	Sample () ()		