

## COMPREHENSIVE REPORT

Characterizing and Overcoming Dormancy in Potato Minitubers  
 March 1, 2000  
 2000 Annual Research Meeting of the SLV Research Center Committee

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#### (B) Minituber dormancy

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2. Treatment method
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***Martinez Farms studies with Centennial, Atlantic, Russet Norkotah, Russet Nugget***  
 Figure showing %bud break for red light, dark, p-coumaric acid and Pro-Gibb applications 25 days after treatment stored at 59 F

Table 4. Emergence (%) of treated minitubers infield at Martinez Farms, planted 7/1/99, observations 8/10/99

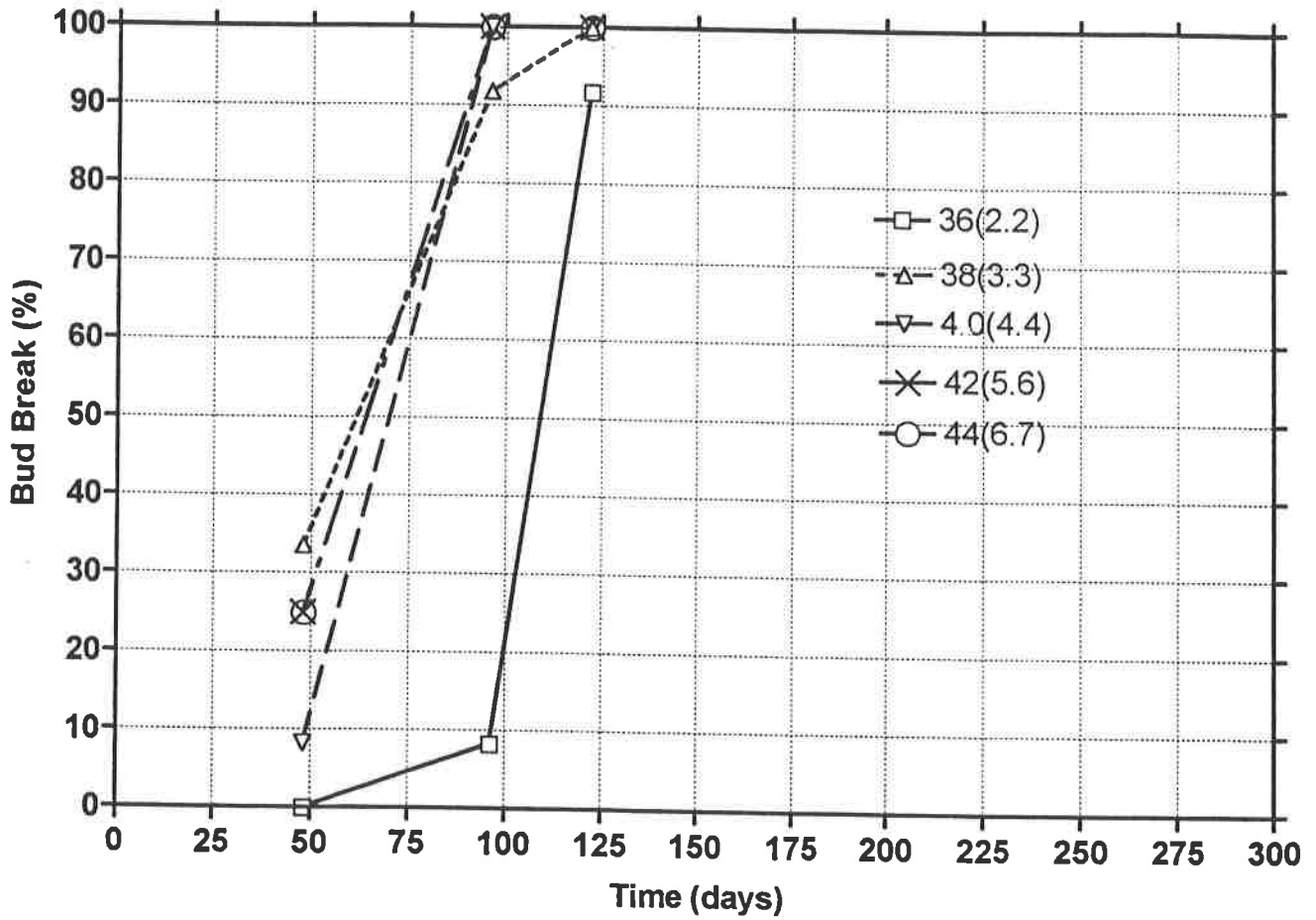
##### ***Zapata studies with Norkotah and Norkotah #3***

Figure showing %bud break for red light, dark, p-coumaric acid and Pro-Gibb applications 25 days after treatment stored at 55 F for 3 weeks, then 60 F for one week.

##### ***Prolonging storage of nondormant minituber cultivars (Atlantic, Centennial, Chieftain, Kennebec, R. Norkotah #3, R. Norkotah #8). Courtesy of Martinez Farms.***

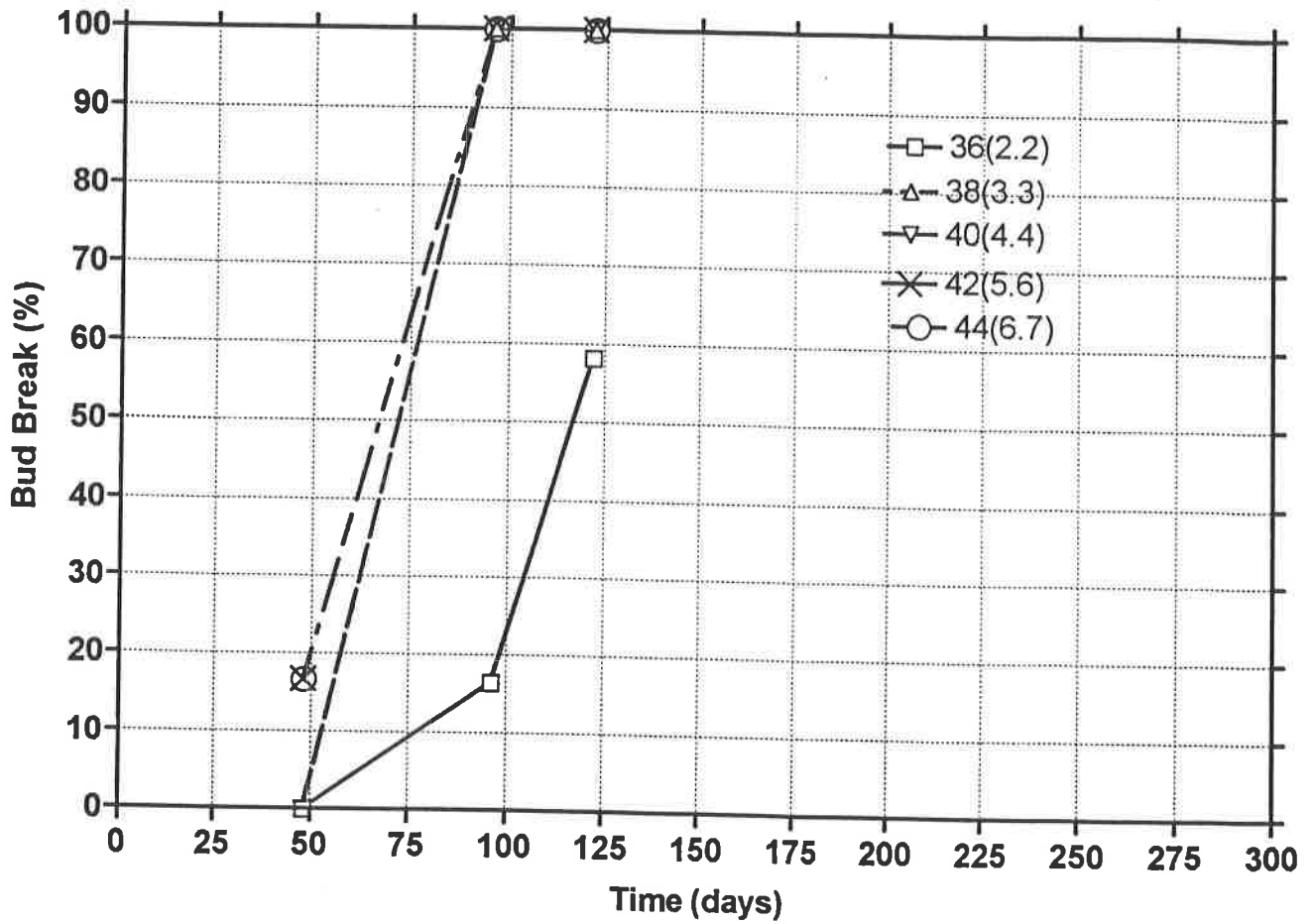
Six figures showing % bud break after 104 days storage at 34, 36, 38 and 40 F, testing alginate gel encapsulation and sucrose treatments, stored in paper bags to restrict moisture loss. Also showing % bud break after incubation at 60 F for 17 days.

### AC83064-1 Storage Characteristics



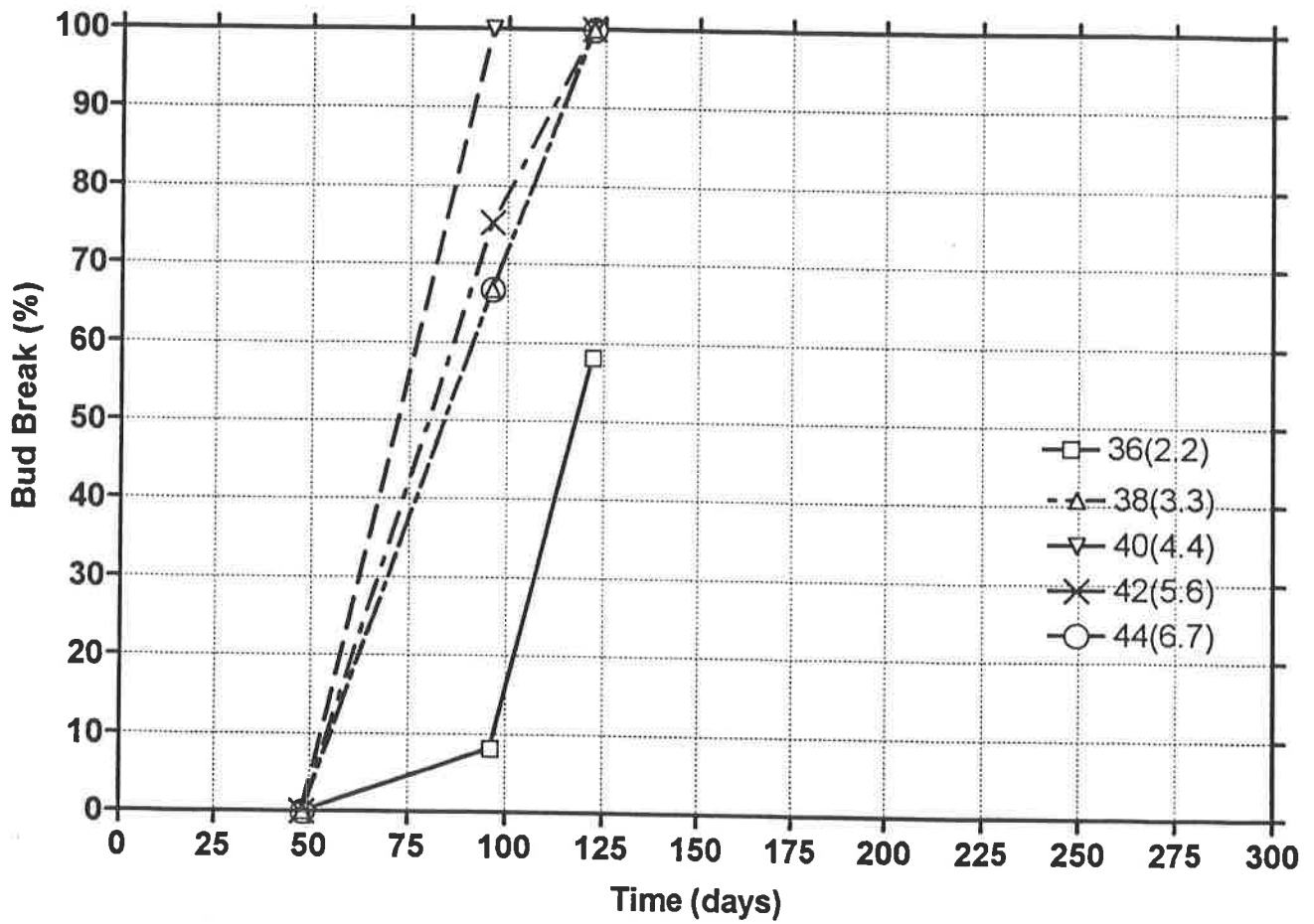
Field tuber storage performance profile for AC84064-1

### AC83064-6 Storage Characteristics



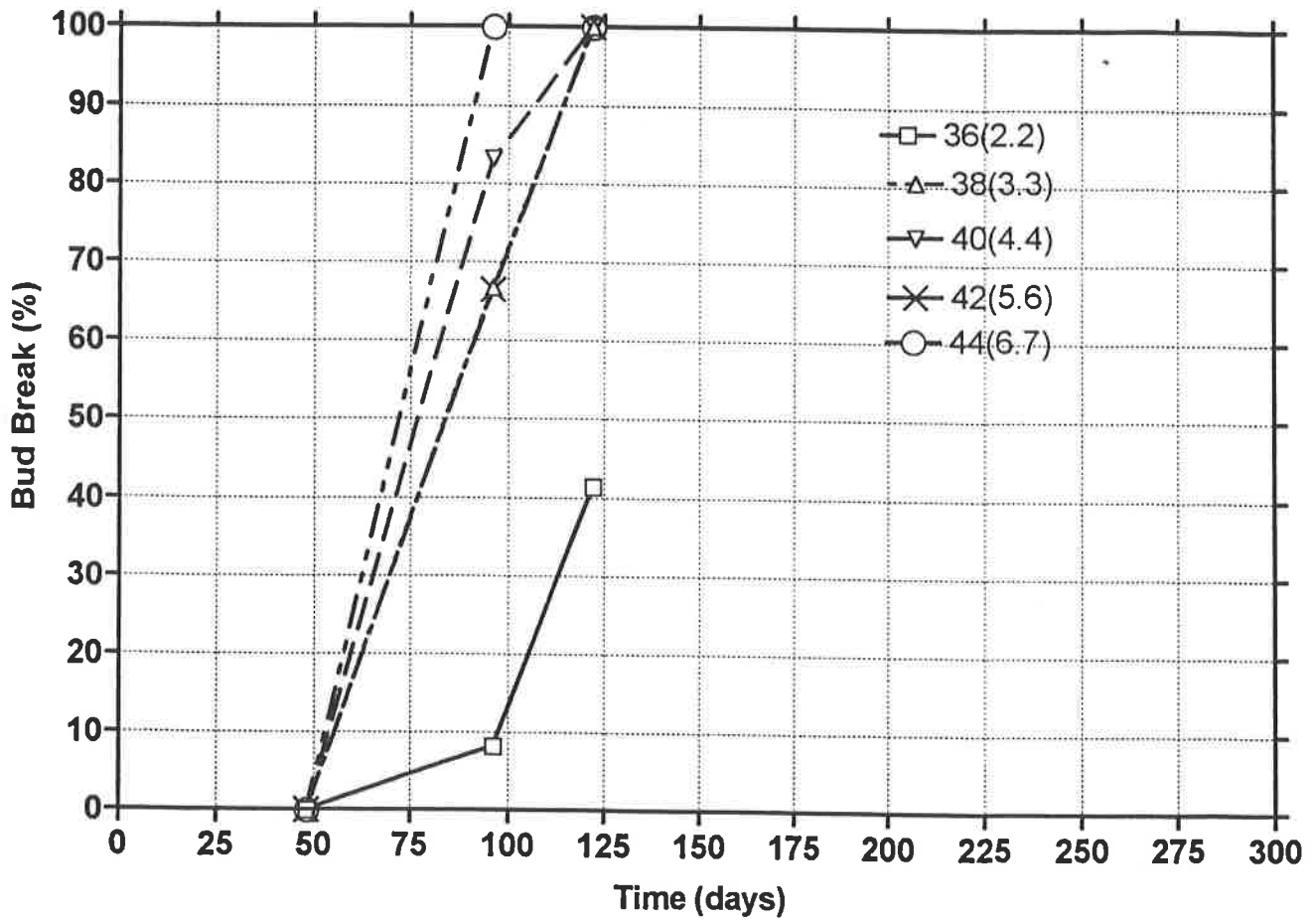
Field tuber storage performance profile for AC83064-6

### R.Norkotah #3 Storage Characteristics



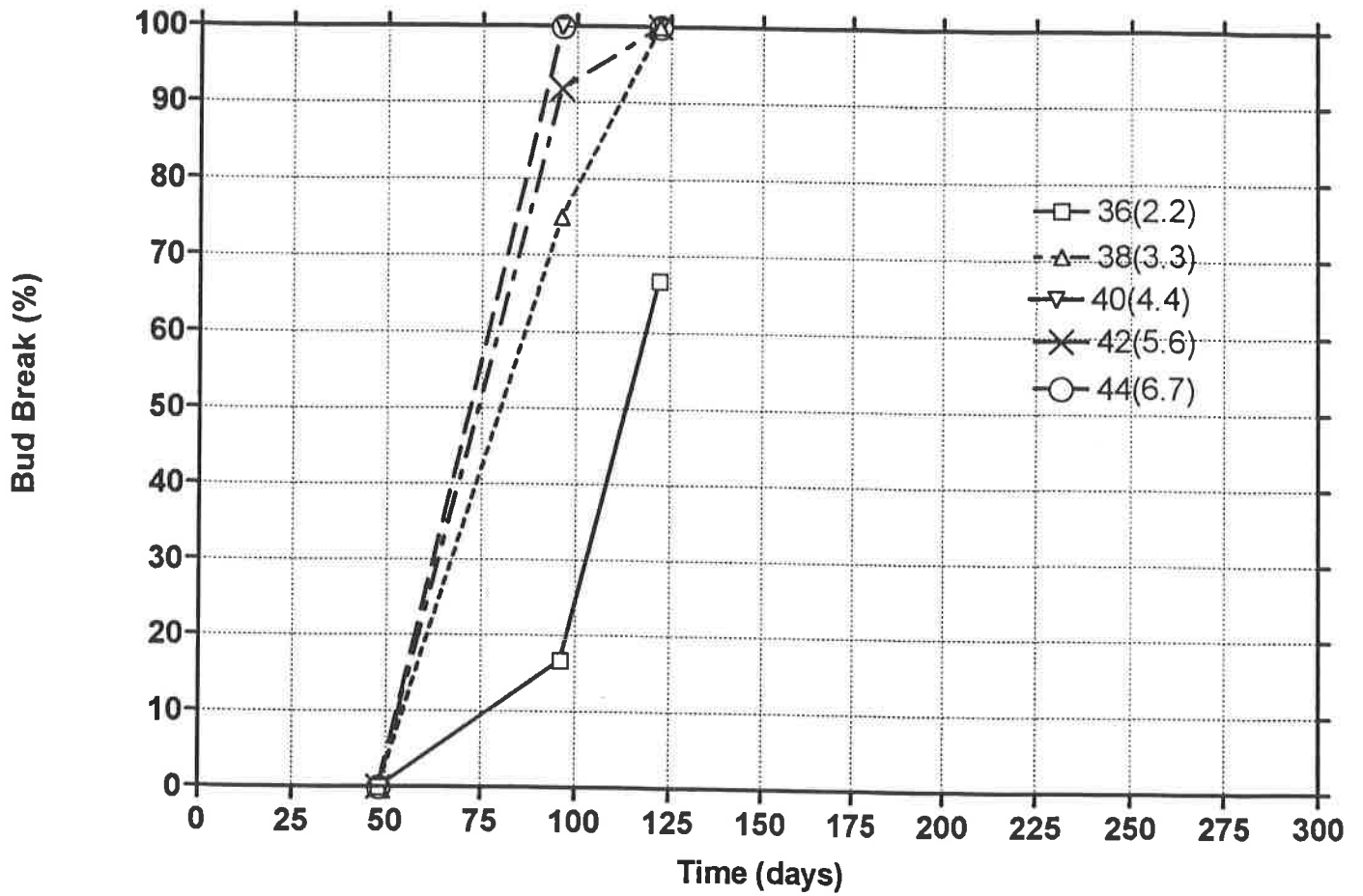
Field tuber storage performance profile for R. Norkotah #3

### R. Norkotah #8 Storage Characteristics



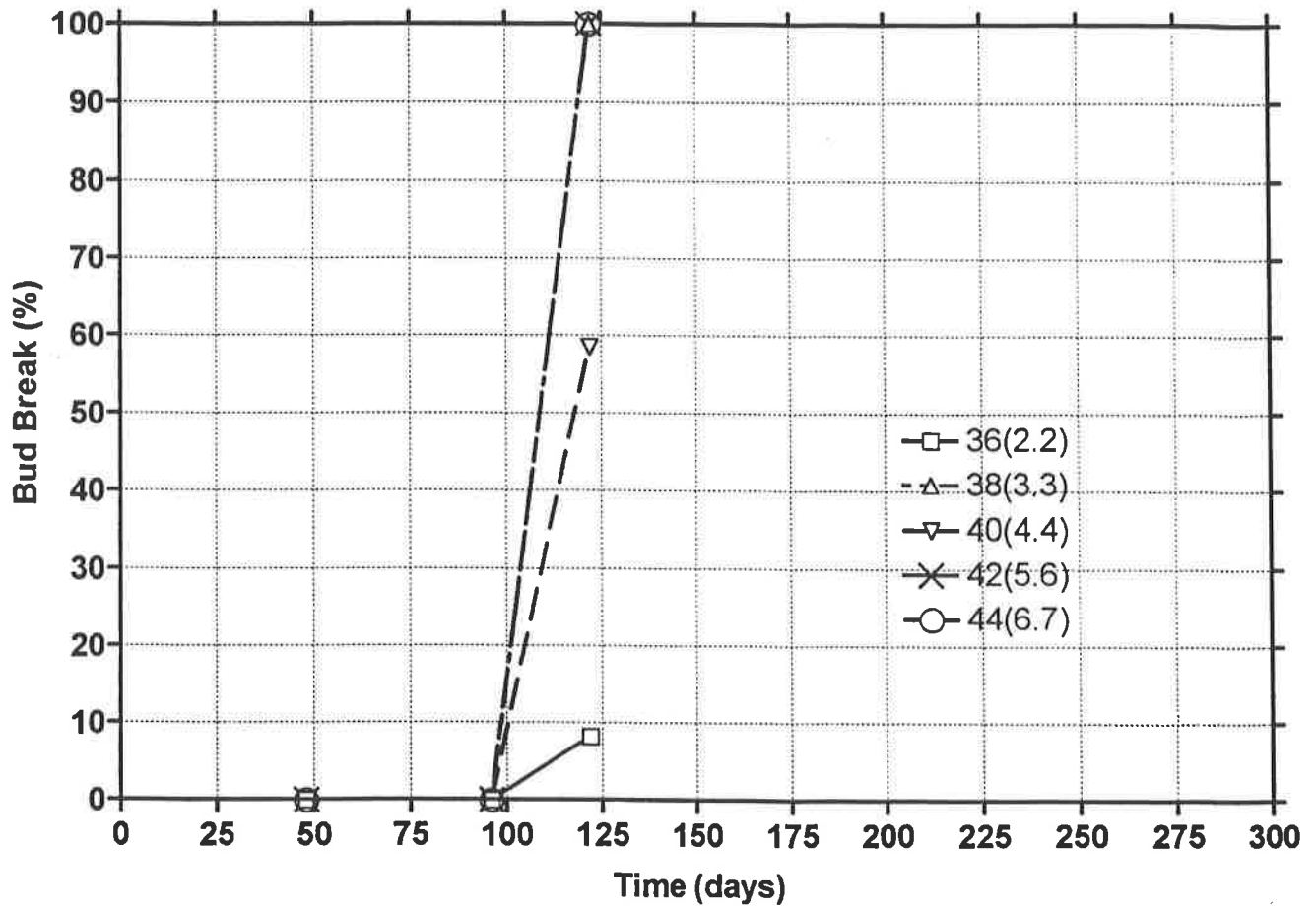
Field tuber storage performance profile for R. Norkotah #8

### R. Nugget Storage Characteristics



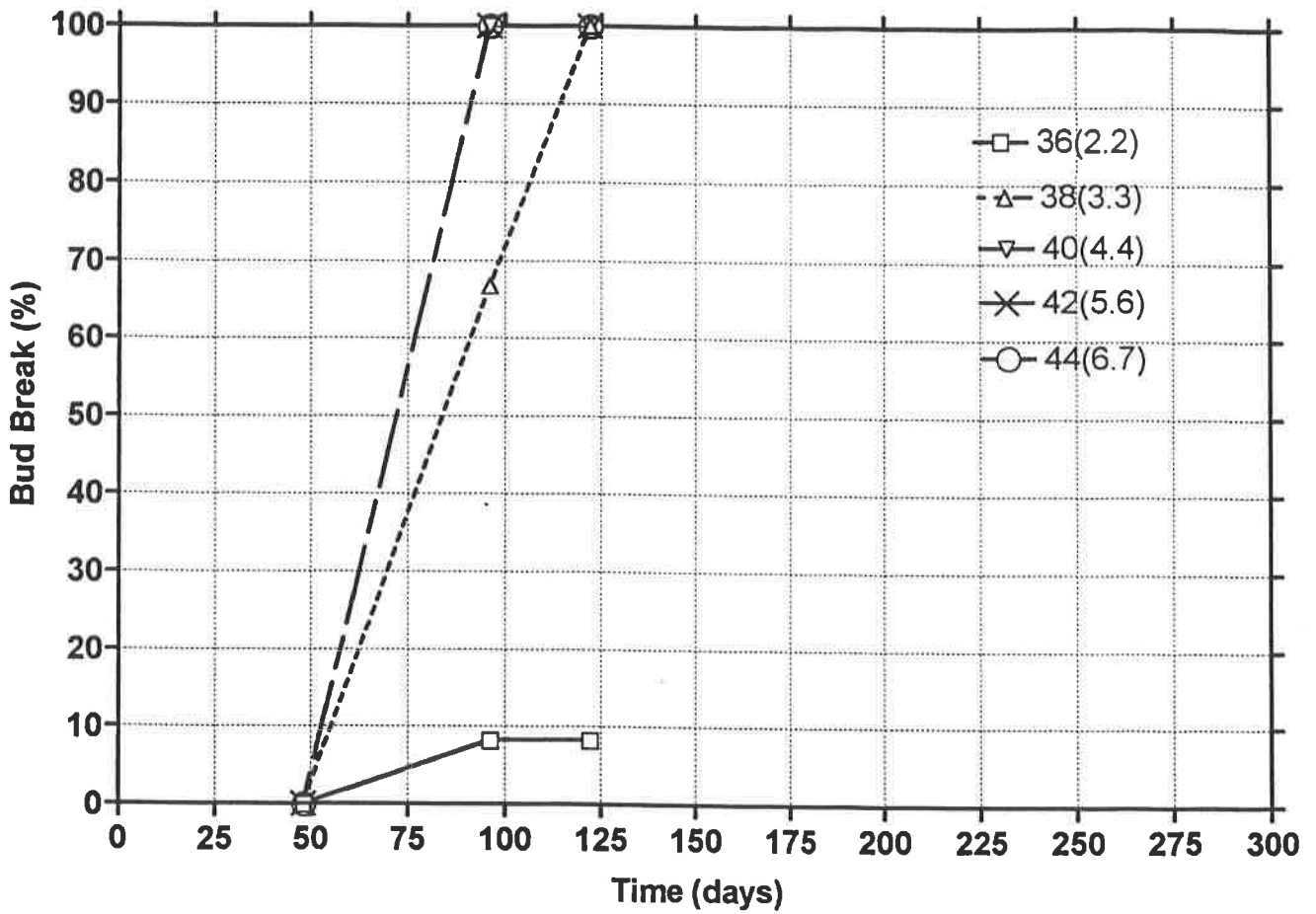
Field tuber storage performance profile for R. Nugget

## R. Burbank Storage Characteristics



Field tuber storage performance profile for R. Burbank

### DT6063-1R Storage Characteristics



Field tuber storage performance profile for DT6063-1R

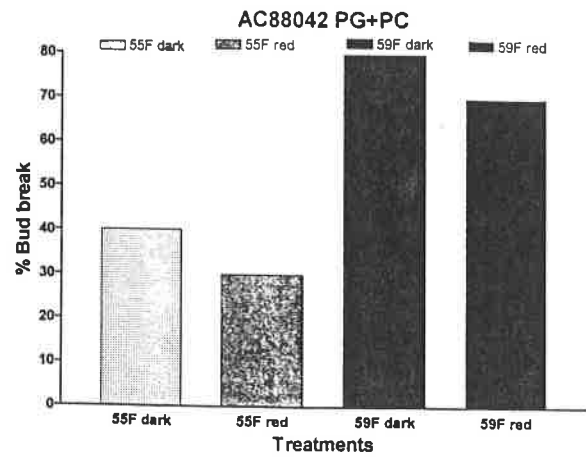
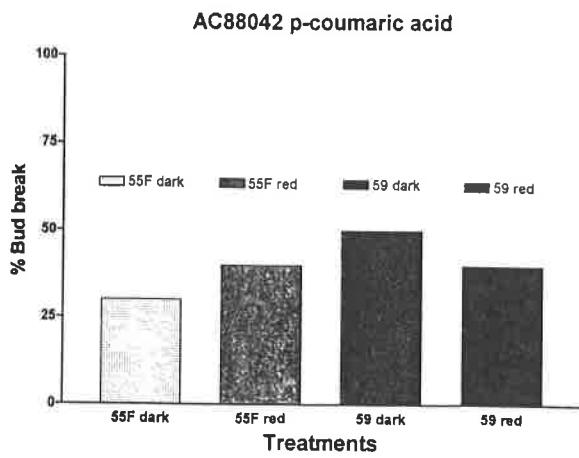
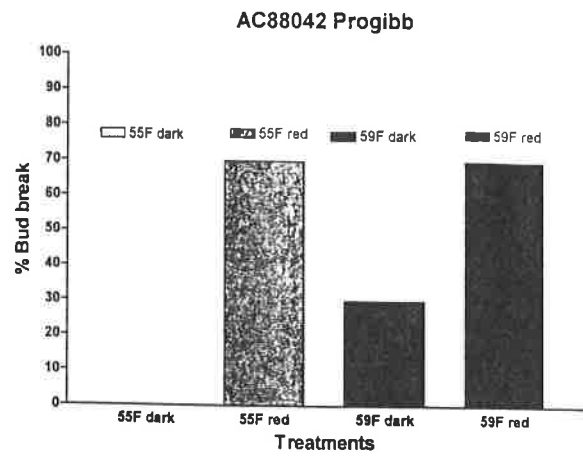
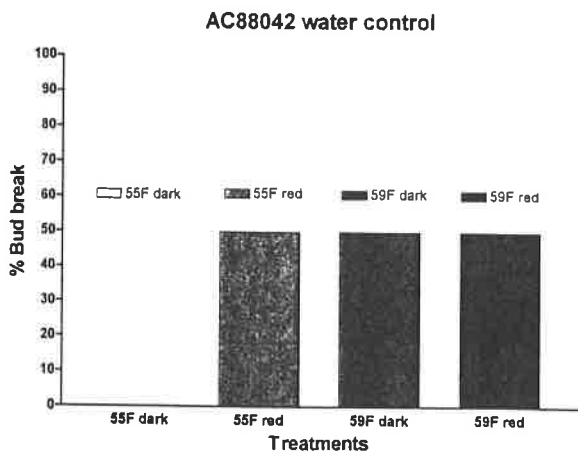


Table 1. Days in storage to attain 10% tuber bud break

<u>Variety</u>	<u>Storage Temperature (°F)</u>				
	<u>44</u>	<u>42</u>	<u>40</u>	<u>38</u>	<u>36</u>
AC83064-1	<40	<40	<50	<50	90
R. Nugget	52	52	52	53	75
AC83064-6	40	40	52	52	75
R. Norkotah #3	55	55	53	56	95
R. Norkotah #8	52	55	55	56	95
DT6063-1R	52	52	52	55	125
R. Brubank	100	100	100	100	125

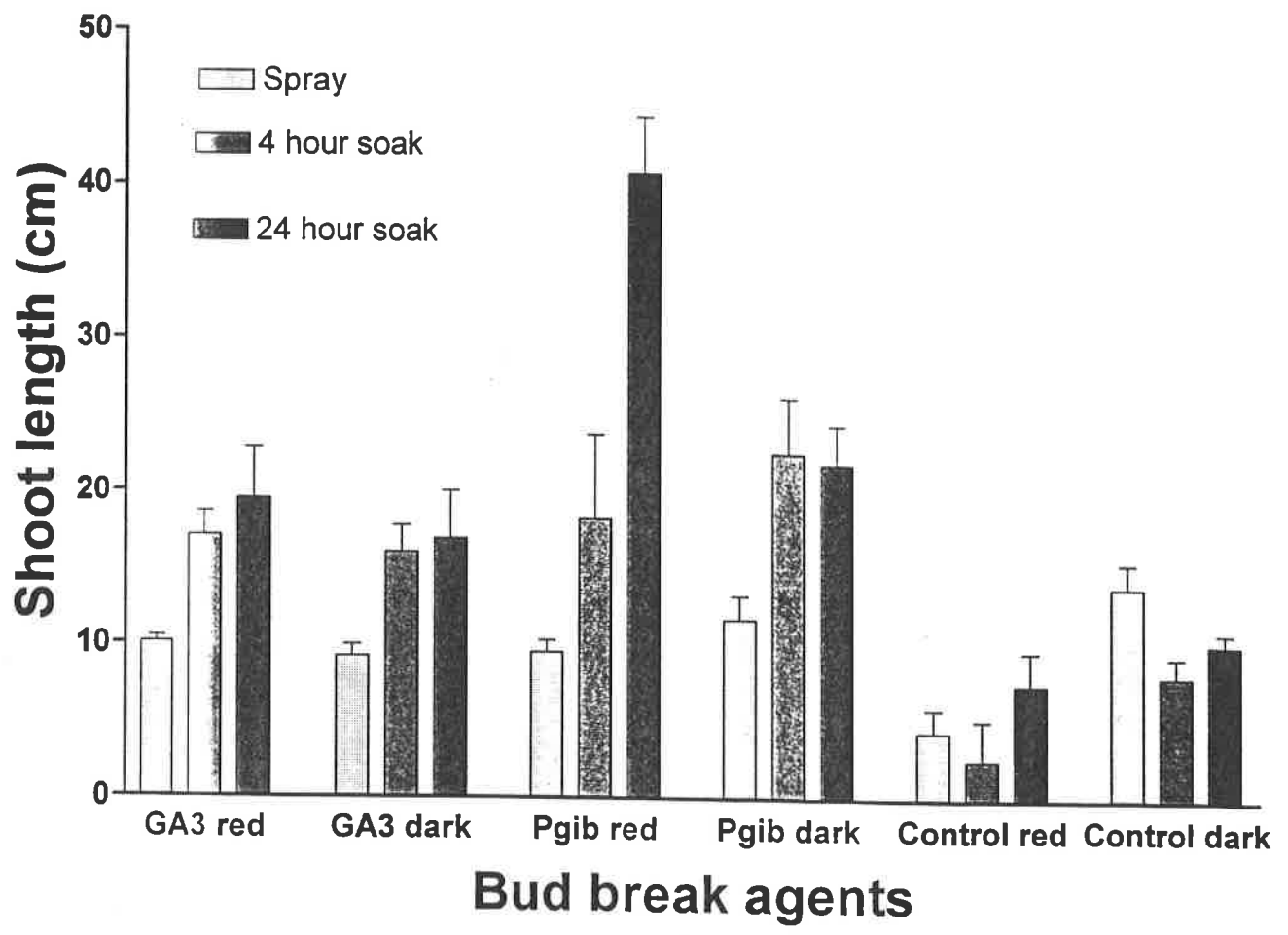
Table 2. Days in storage to attain 50% tuber bud break

<u>Variety</u>	<u>Storage Temperature (°F)</u>				
	<u>44</u>	<u>42</u>	<u>40</u>	<u>38</u>	<u>36</u>
AC83064-1	58	60	50	70	110
R. Nugget	70	75	70	80	112
AC83064-6	65	65	70	70	115
R. Norkotah #3	85	80	72	85	115
R. Norkotah #8	72	85	78	85	>125
DT6063-1R	73	85	73	85	
R. Brubank	110	110	115	110	



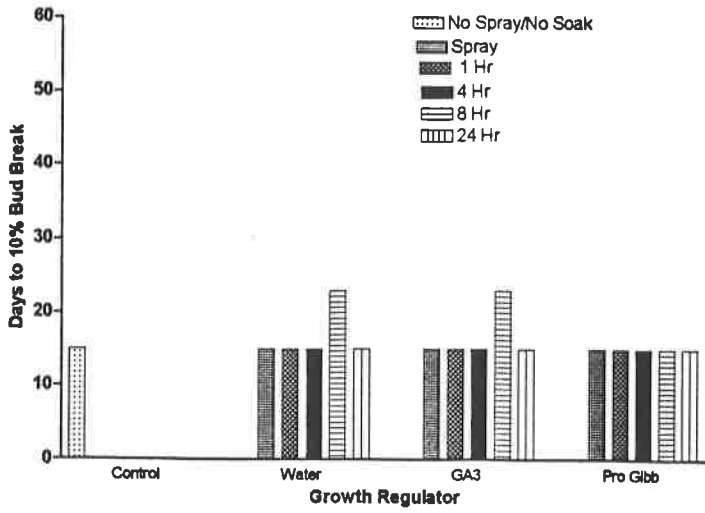
Minituber dormancy studies with cv. AC88042-1 using growth regulators

### Treatment Method



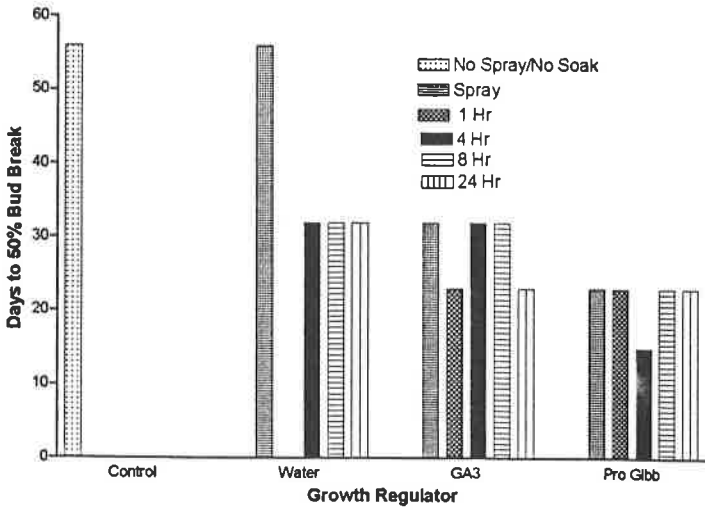
Minituber dormancy studies with AC88042-1 effect of length of treatment

Dark AC88042-1

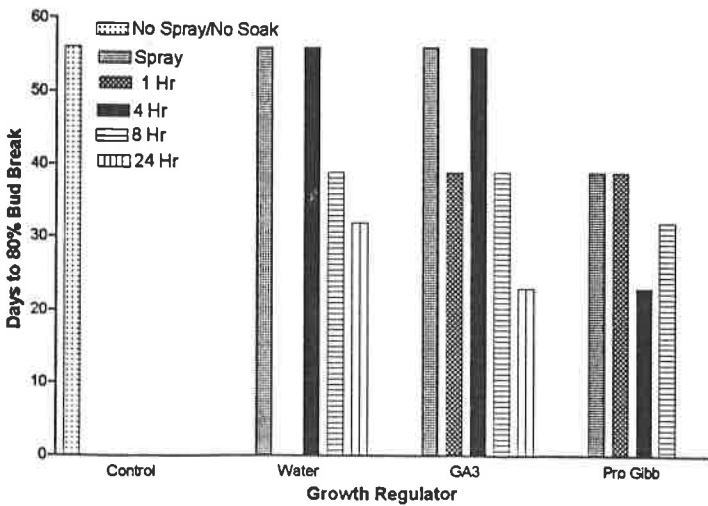


Minituber dormancy studies using cv. AC88042-1-effect of length of treatment with incubation in the dark at 60F

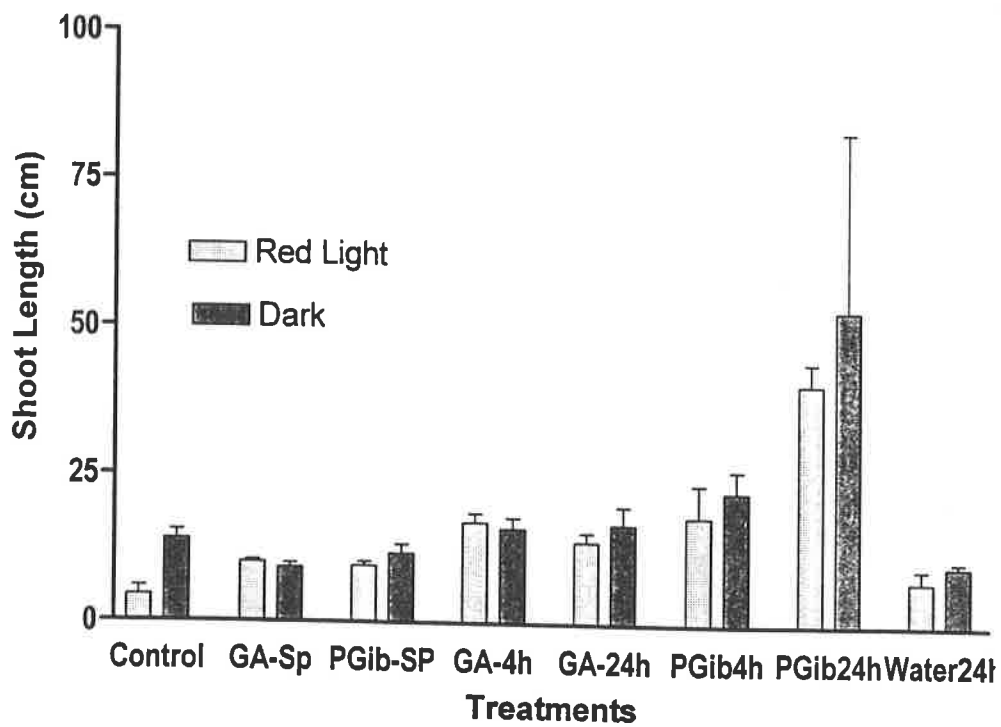
Dark AC88042-1



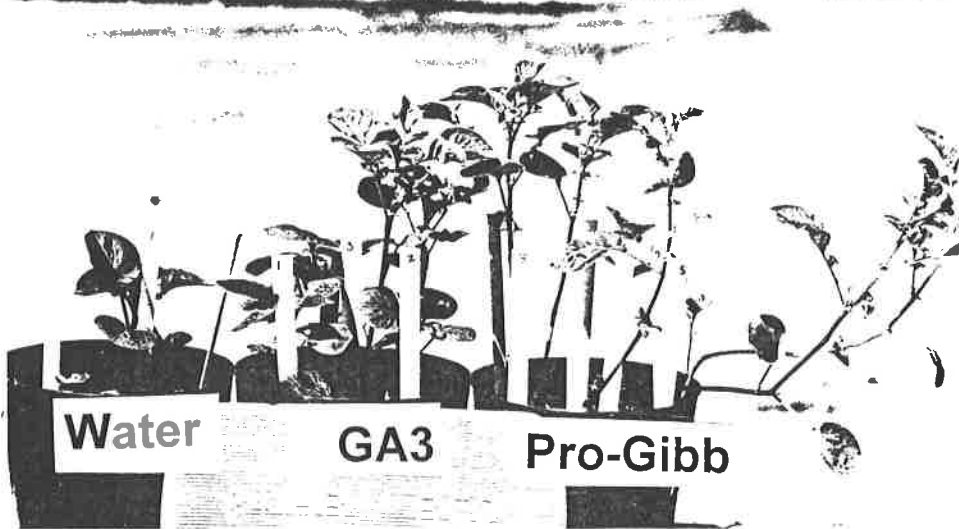
Dark AC88042-1



### Red light vs dark



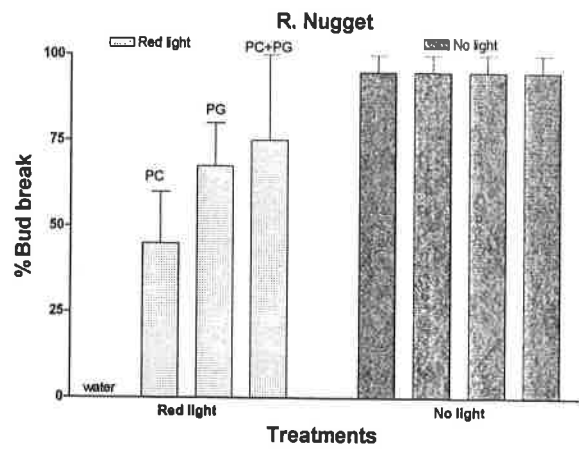
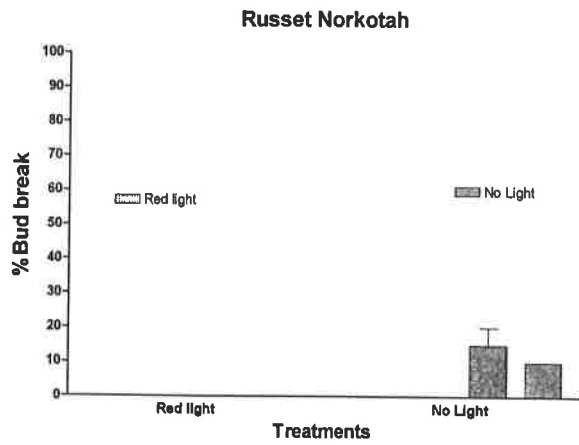
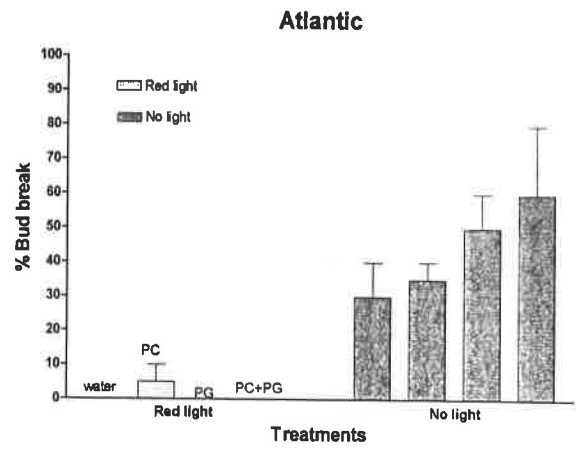
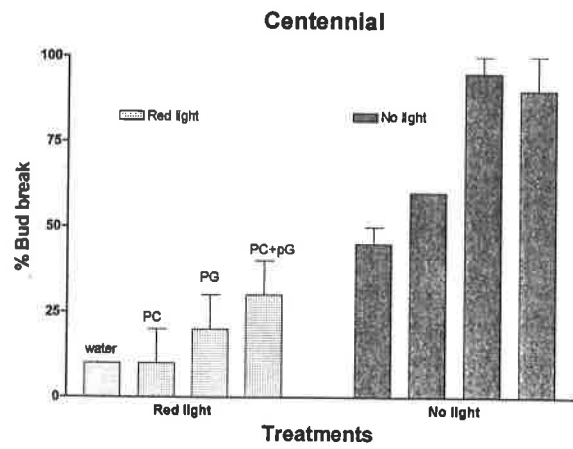
Minituber dormancy studies using cv. AC88042-1 red light vs dark



Minituber dormancy studies using cv. AC88042-1 effect of growth regulators in conjunction with length of treatment, incubation in red light at 60F

Table 3 . Field (SLVRC) emergence(%) observations for growth regulator treated minitubers cv: AC88042-1. Minitubers were incubated at 55-59F in either dark or with red light for 3 weeks prior to being placed in the field plots. Stand count observations were taken August 15, 1999. Field observations did not detect any abnormal growth patterns due to the growth regulator applications.

<u>Growth Regulator</u>	<u>Concentration</u>	<u>Dark</u>	<u>Red Light</u>
Pro Gibb + P-Coumaric	10 <sup>-3</sup>	80	100
	10 <sup>-4</sup>	90	90
	10 <sup>-5</sup>	80	80
	10 <sup>-6</sup>	60	90
P-Coumaric	10 <sup>-3</sup>	90	90
	10 <sup>-4</sup>	70	100
	10 <sup>-5</sup>	100	80
	0	70	100
GA <sub>3</sub>	10 <sup>-3</sup>	100	80
	10 <sup>-4</sup>	100	100
	10 <sup>-5</sup>	100	80
	0	100	100



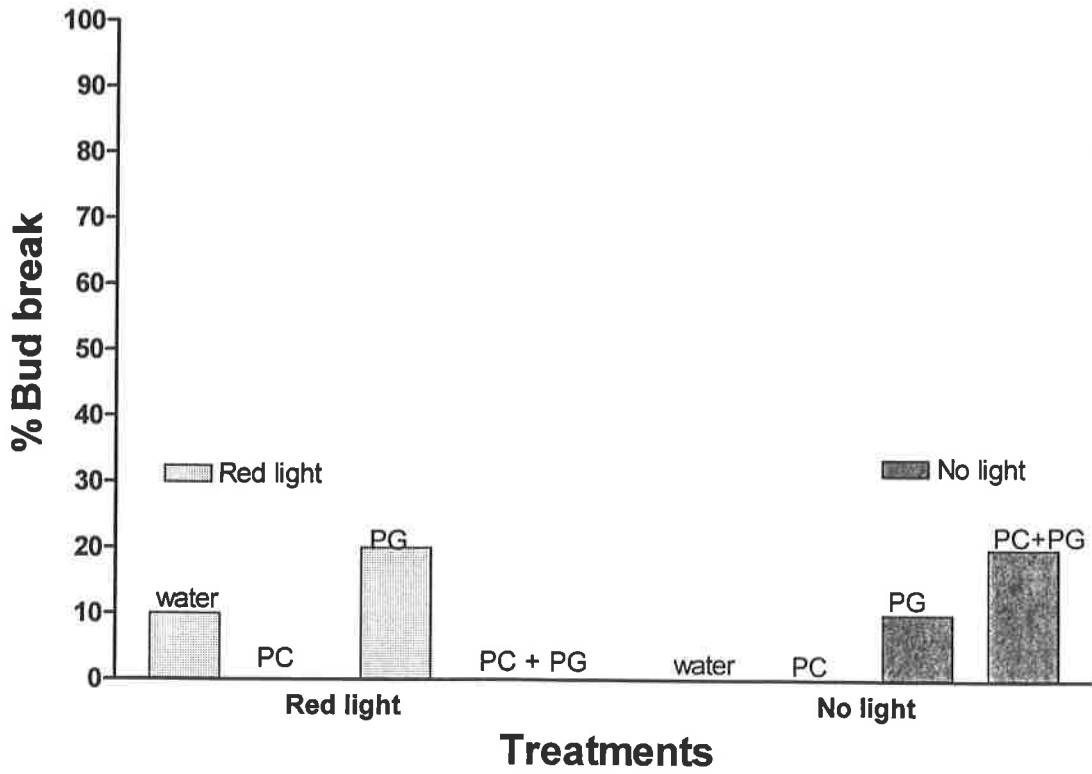
Minituber dormancy studies at Martinez farms



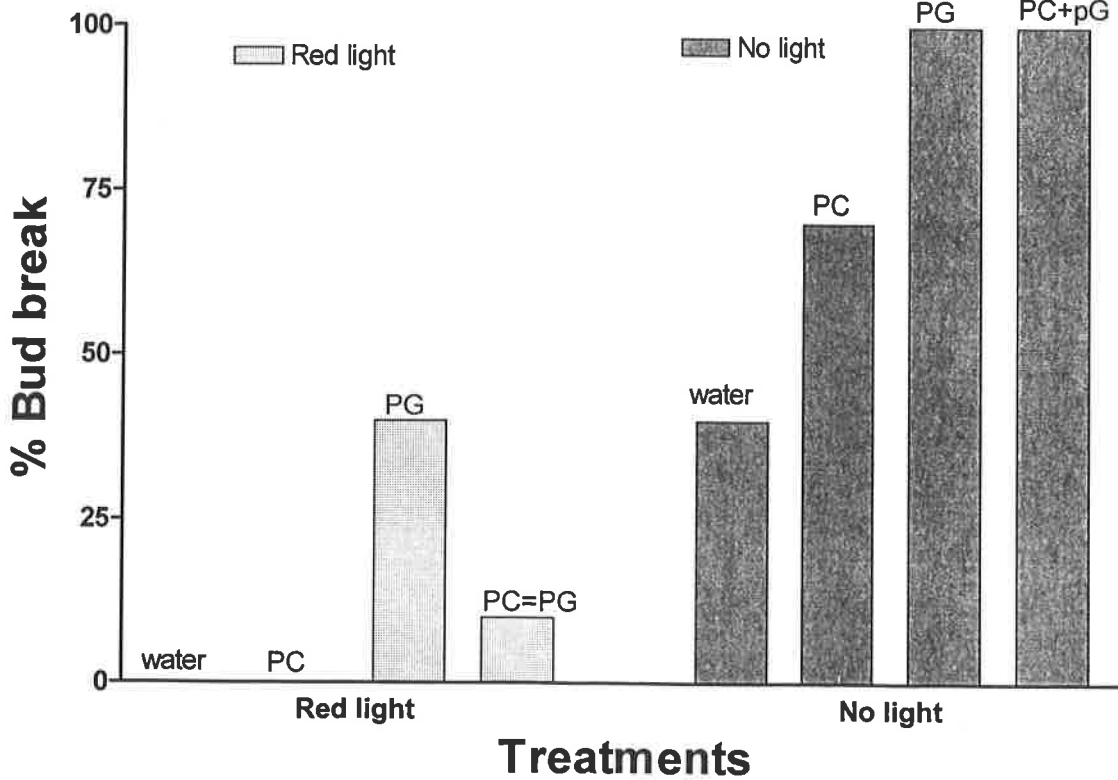
Table 4. Emergence(%) of treated minitubers in Field at Martinez Farms, planted 7/1/99 observations 8/10/99.

Cultivar	P coumaric		Pro Gibb		PC + PG		Water	
	Red	Dark	Red	Dark	Red	Dark	Red	Dark
Centennial R.	95	90	90	95	90	85	90	95
R. Nugget	85	85	95	100	95	90	85	90
R. Norkotah	5	0	5	5	15	0	5	0
Atlantic	70	55	55	80	75	70	80	70

### Norkotah #3

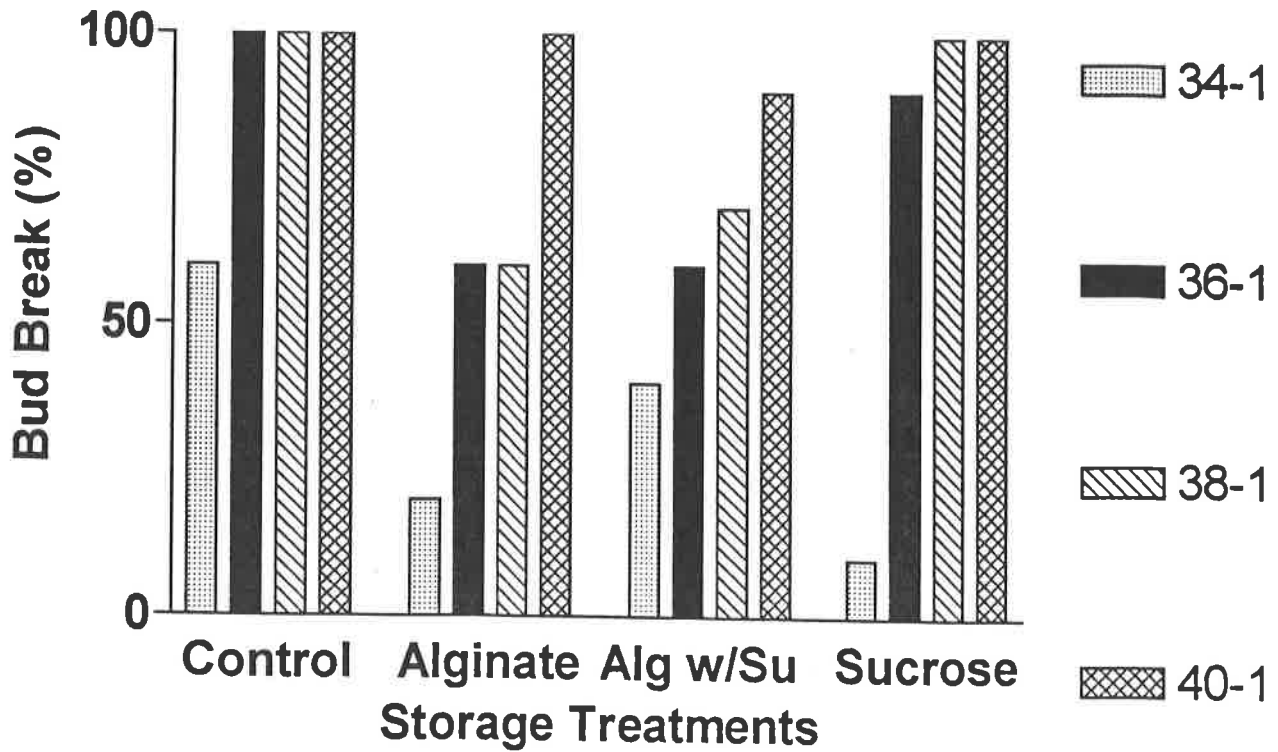


### Norkotah standard

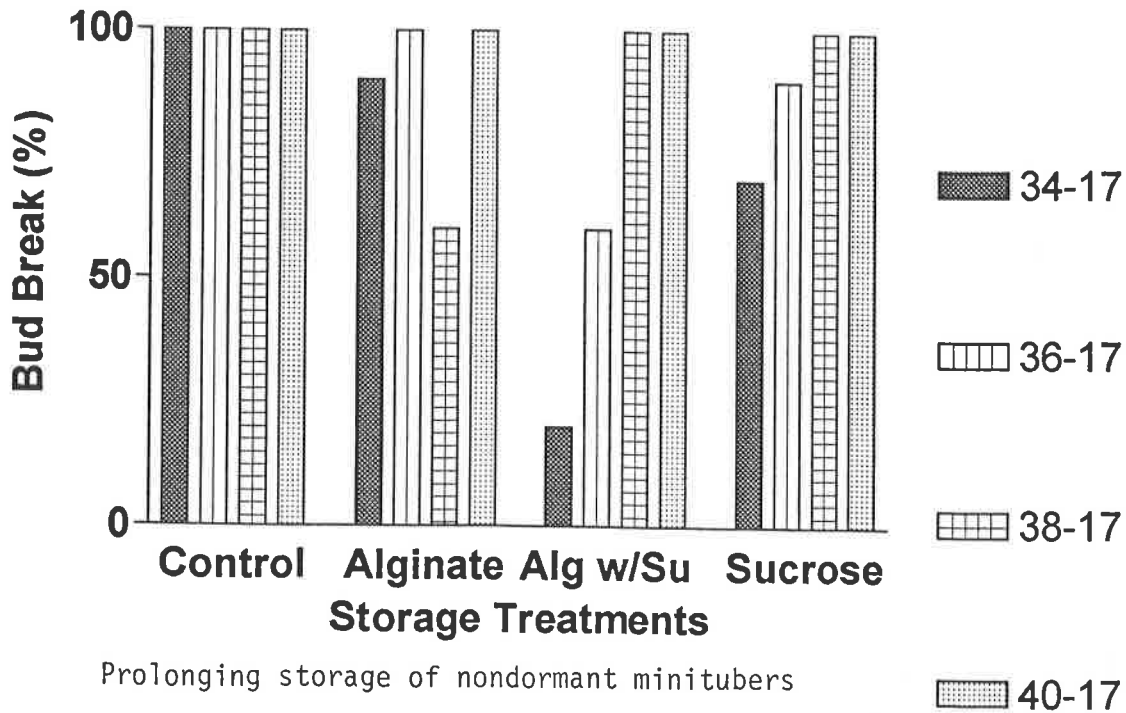


Minituber dormancy studies at Zapata farms

### Atlantic (104 days storage)

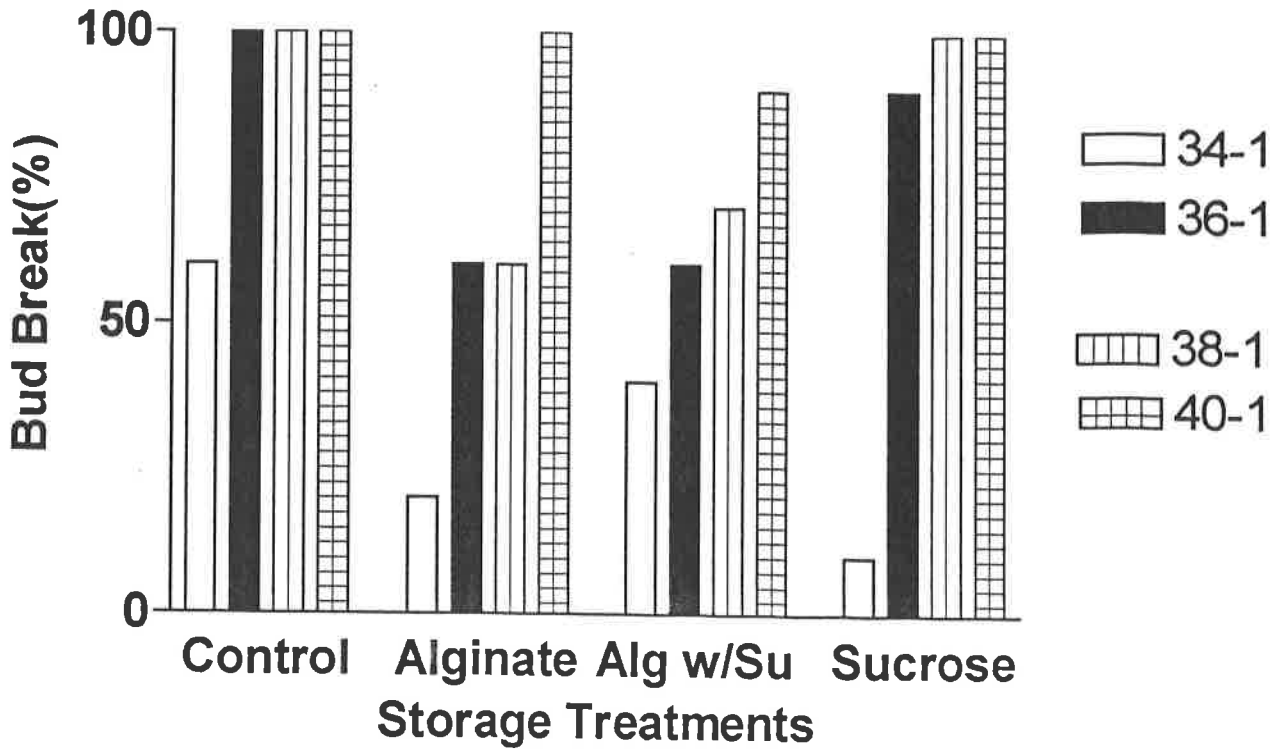


### Atlantic (104 days storage) + 17 days @ 60(15) dark

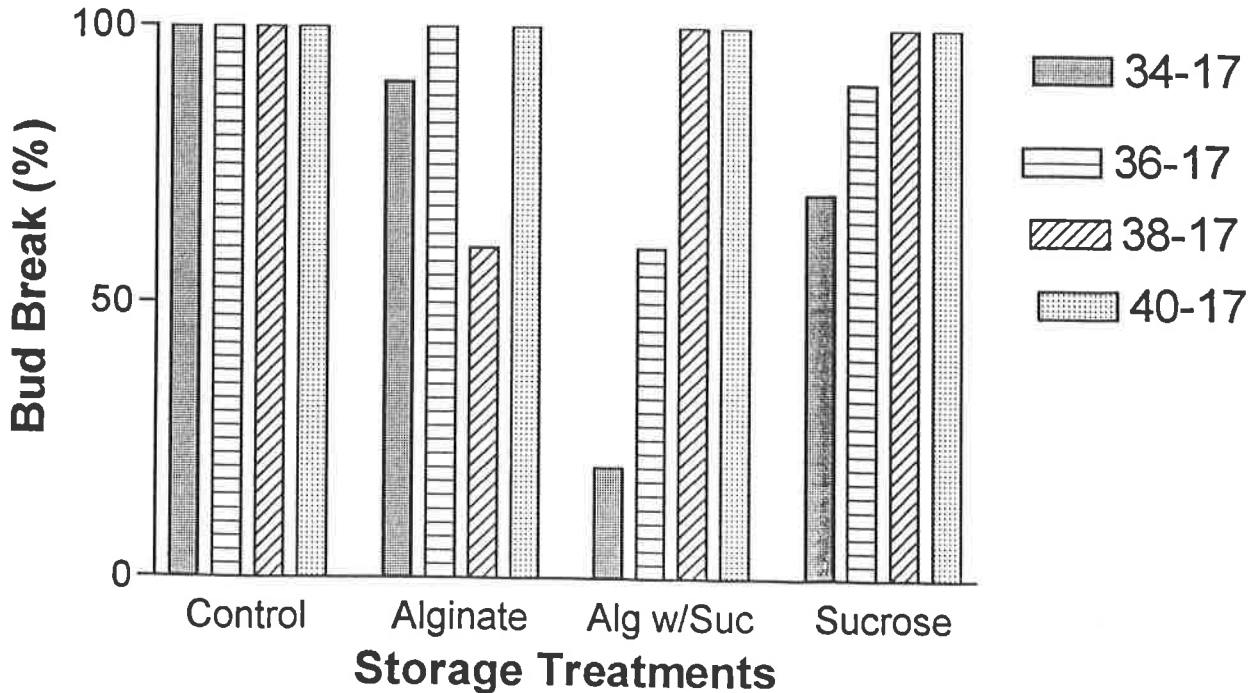


Prolonging storage of nondormant minitubers

### Centennial (104 days storage)

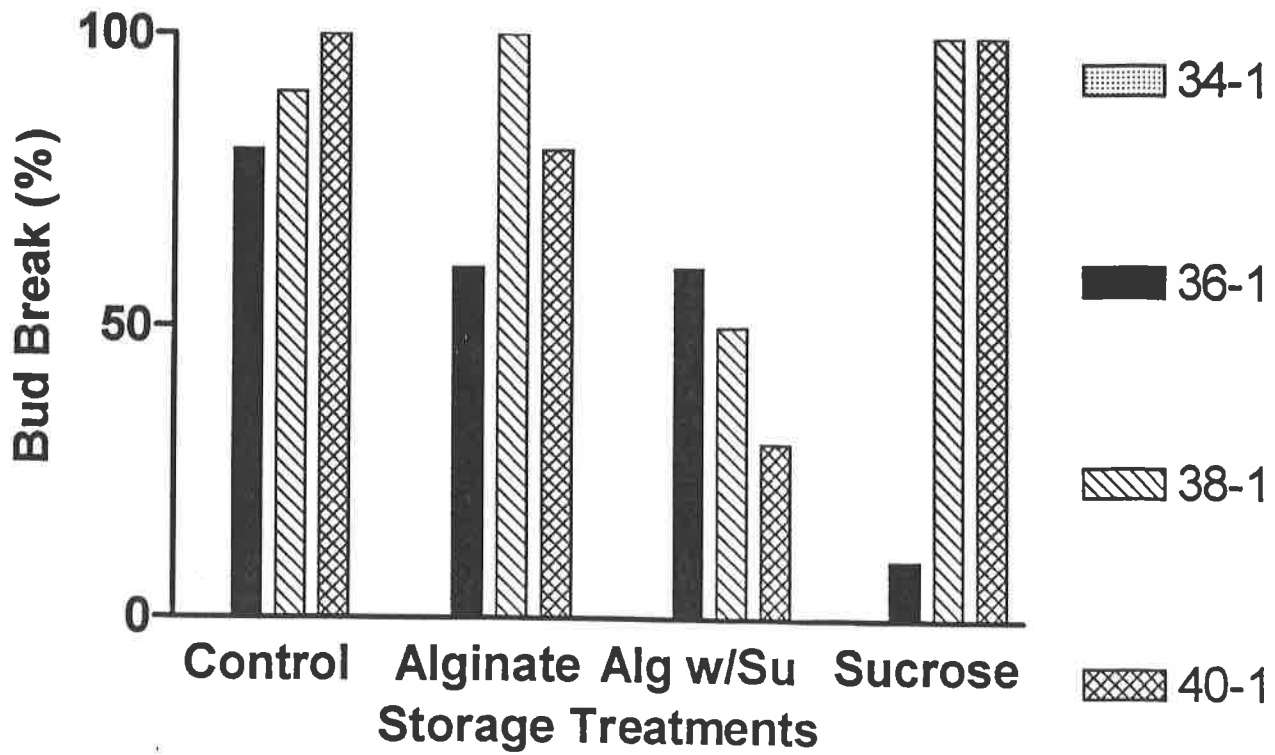


### Centennial (104 days storage) + 17days @ 60(15)

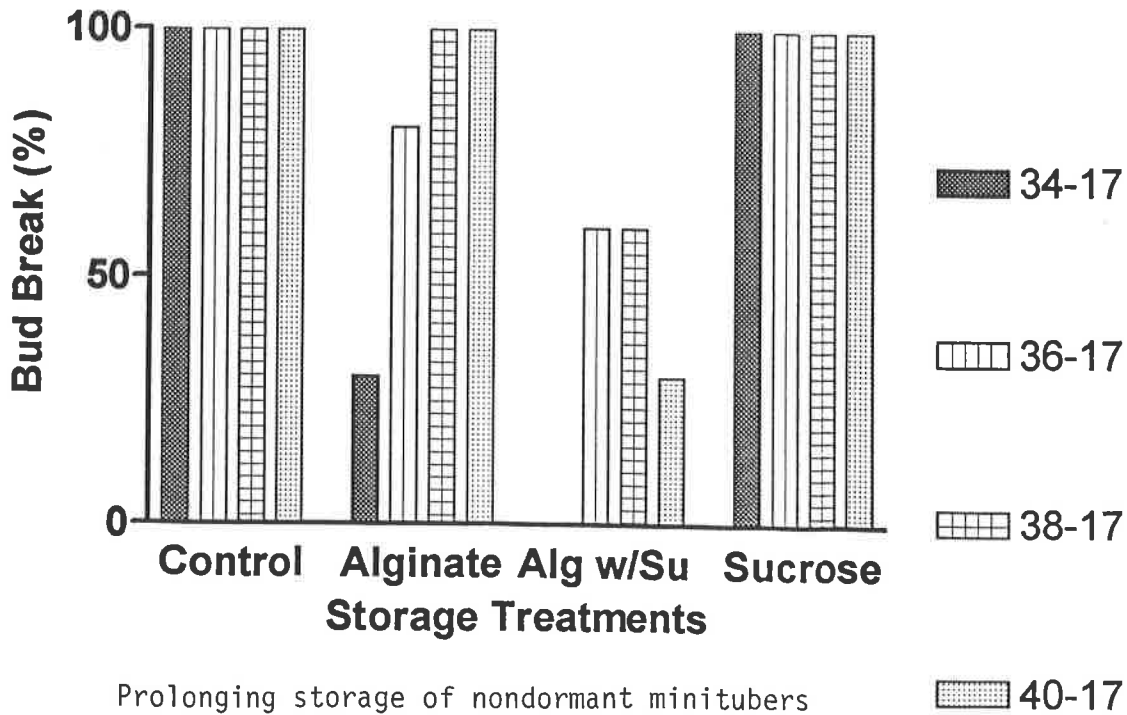


Prolonging storage of nondormant minitubers

### Chieftain(104 days storage)

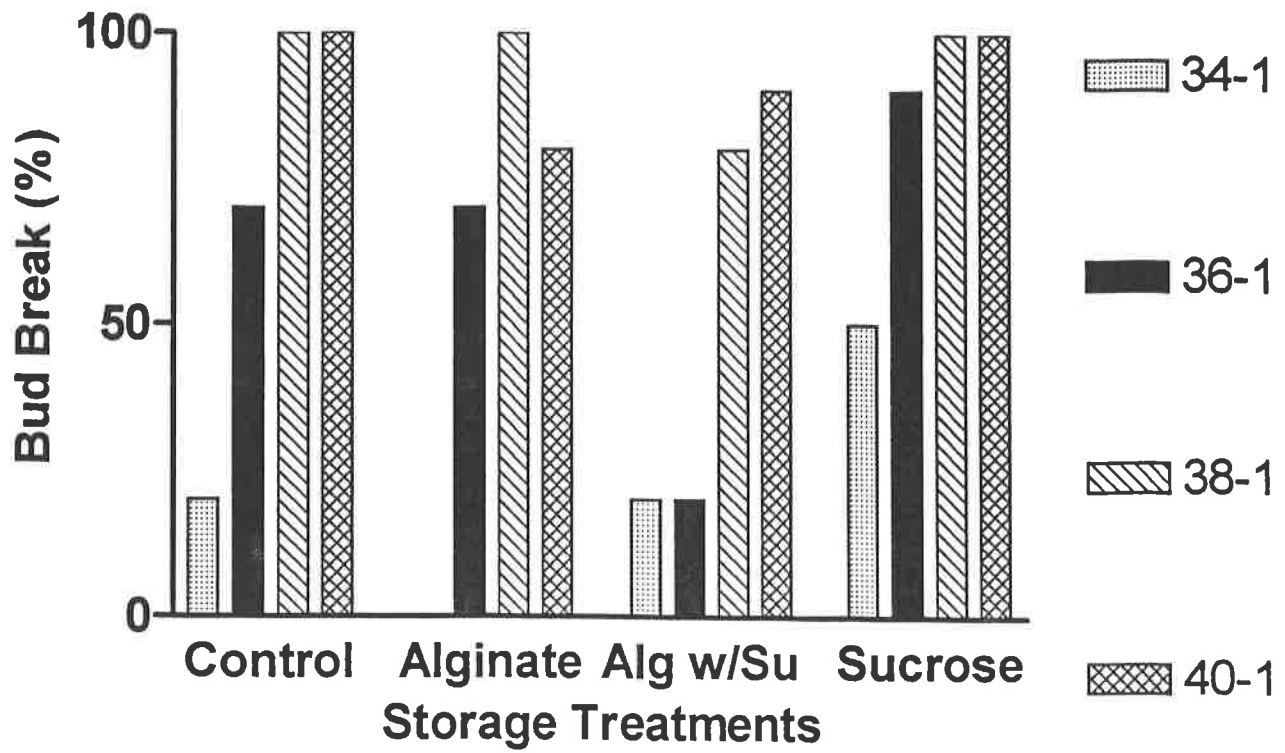


### Chieftain (104 days storage) + 17 days @ 60 (15) dark

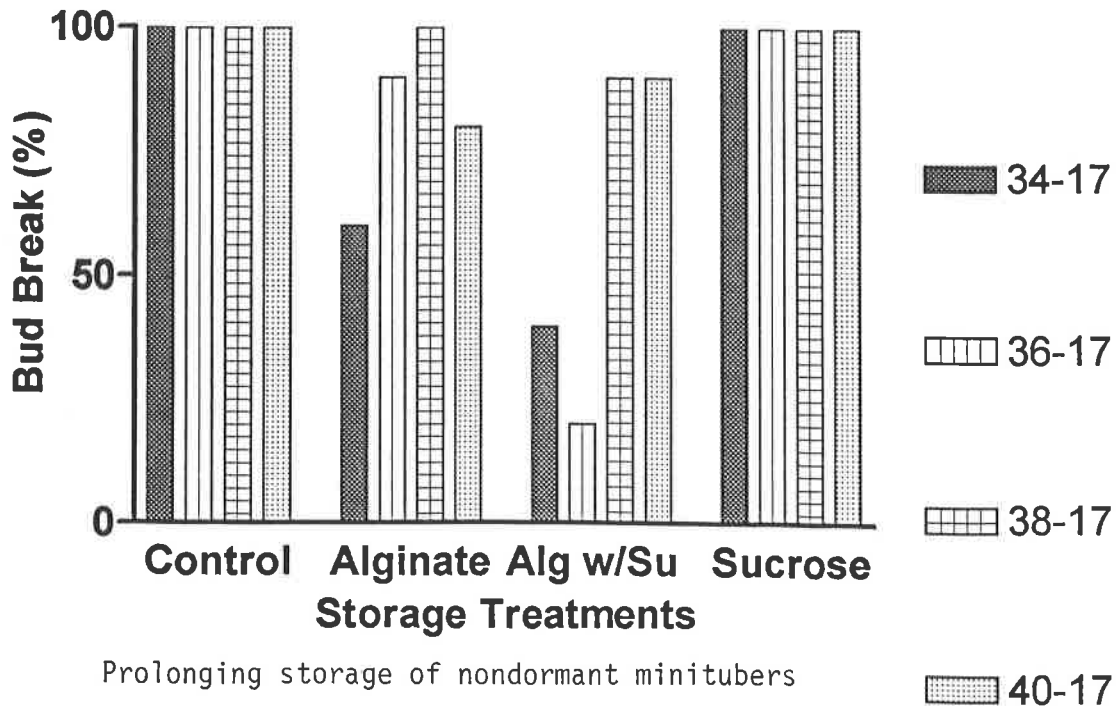


Prolonging storage of nondormant minitubers

## Kennebec (104 days storage)

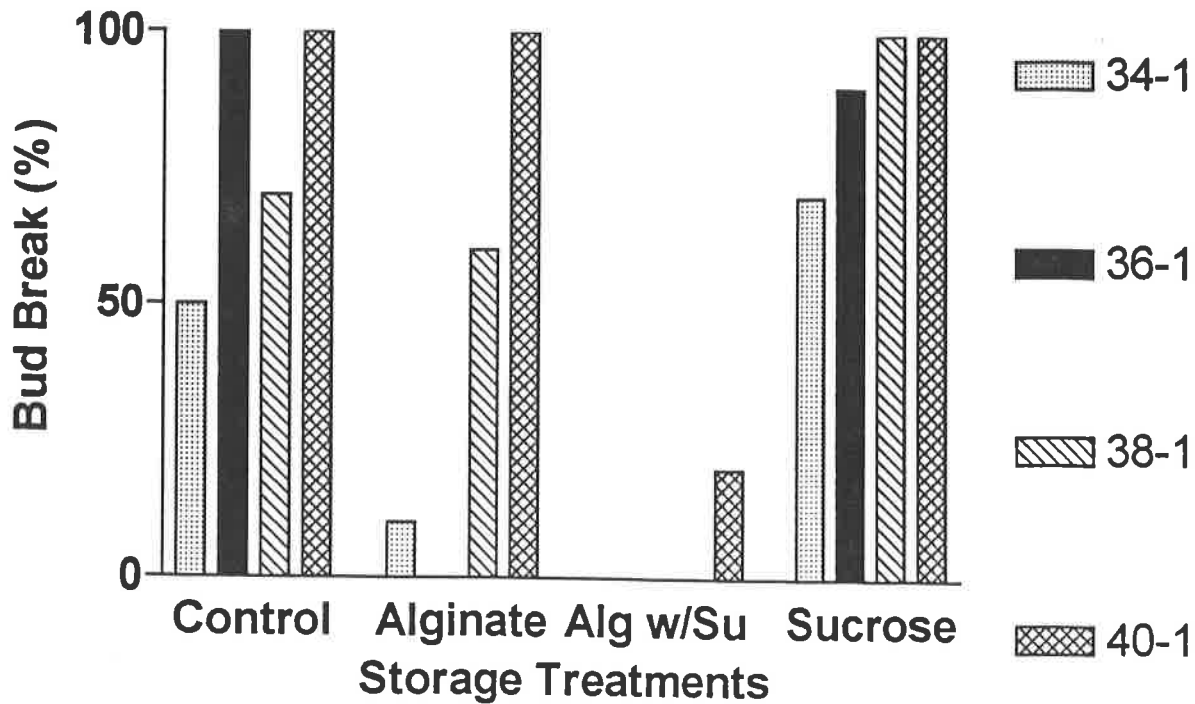


## Kennebec (104 days storage) + 17 days @ 60(15) dark

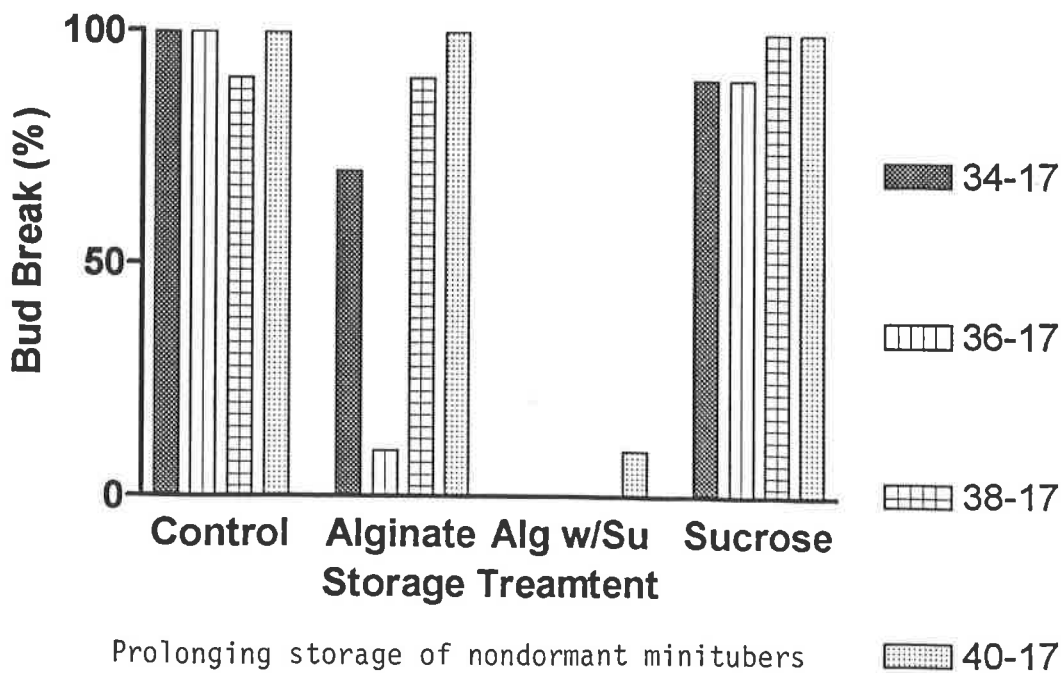


Prolonging storage of nondormant minitubers

### R. Norkotah #3 (104 days storage)

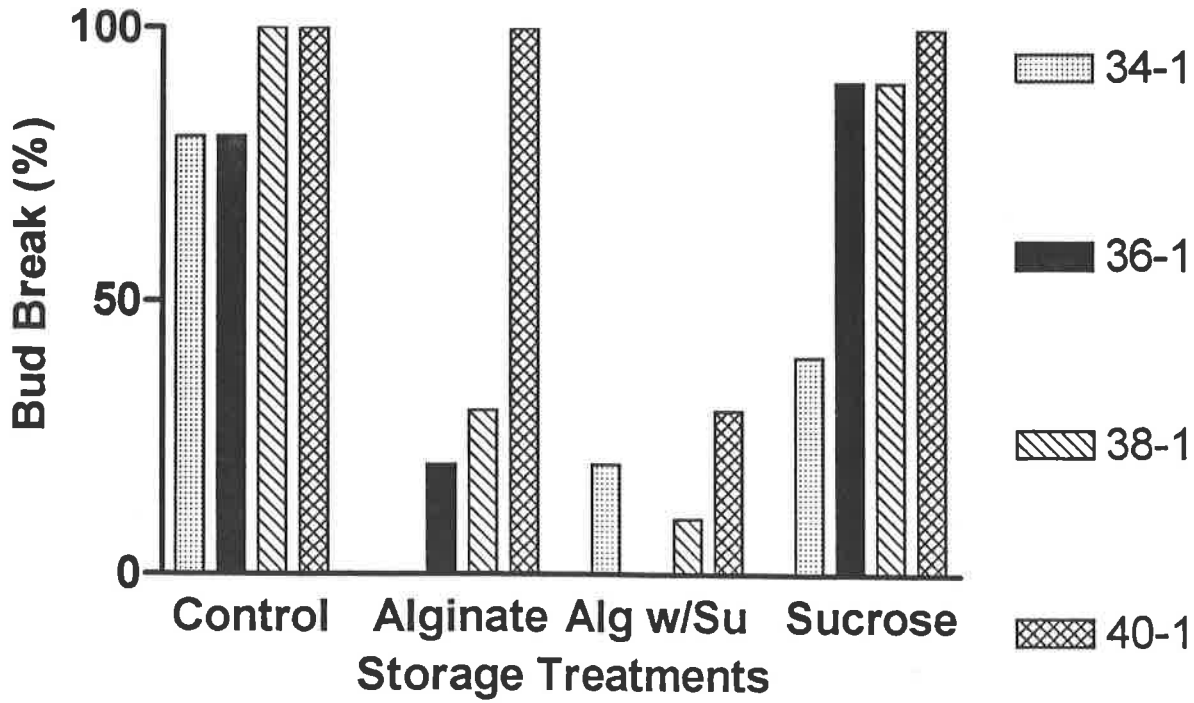


### R. Norkotah #3 (104 days storage) +17 days @ 60 (15) dark

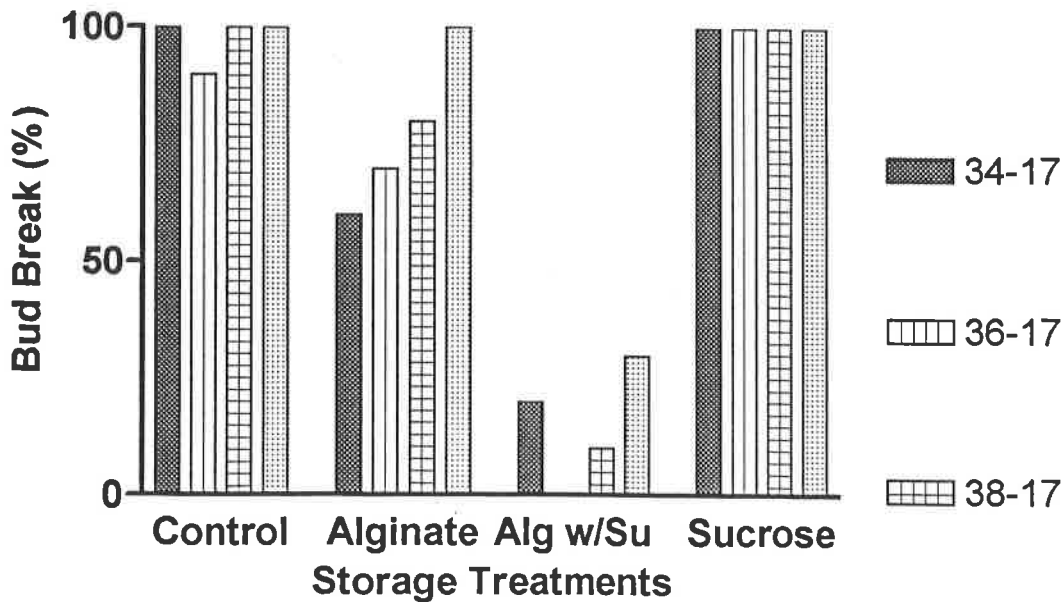


Prolonging storage of nondormant minitubers

### R. Norkotah #8 (104 days storage)



### R. Norkotah #8 (104 days storage) + 17 days @ 60(15) dark



Prolonging storage of nondormant minitubers

40-17