Fruit Age Management: The Key to Successful Long Distance Export of New Zealand Avocados

Jonathan Dixon, Henry Pak, Andrew Mandemaker, Derek Smith, Toni Elmsly and Jonathan Cutting

Avocado Industry Council Ltd

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Introduction

- Fruit quality is set in the orchard
- Orchard management makes a difference with respect to:
  - Fungal control programme
  - Time of harvest
- Harvest from August until March
  - Increasing fruit maturity (DM)

Background

- Issues identified in South Africa have been fruit age and harvest maturity
- Quality assurance programme (Outturn monitoring) 2000-2002 in Los Angeles
  - Inspection of 12,000+ fruit
  - A survey and not a controlled experiment
- By managing fruit age deliver fruit of consistent quality

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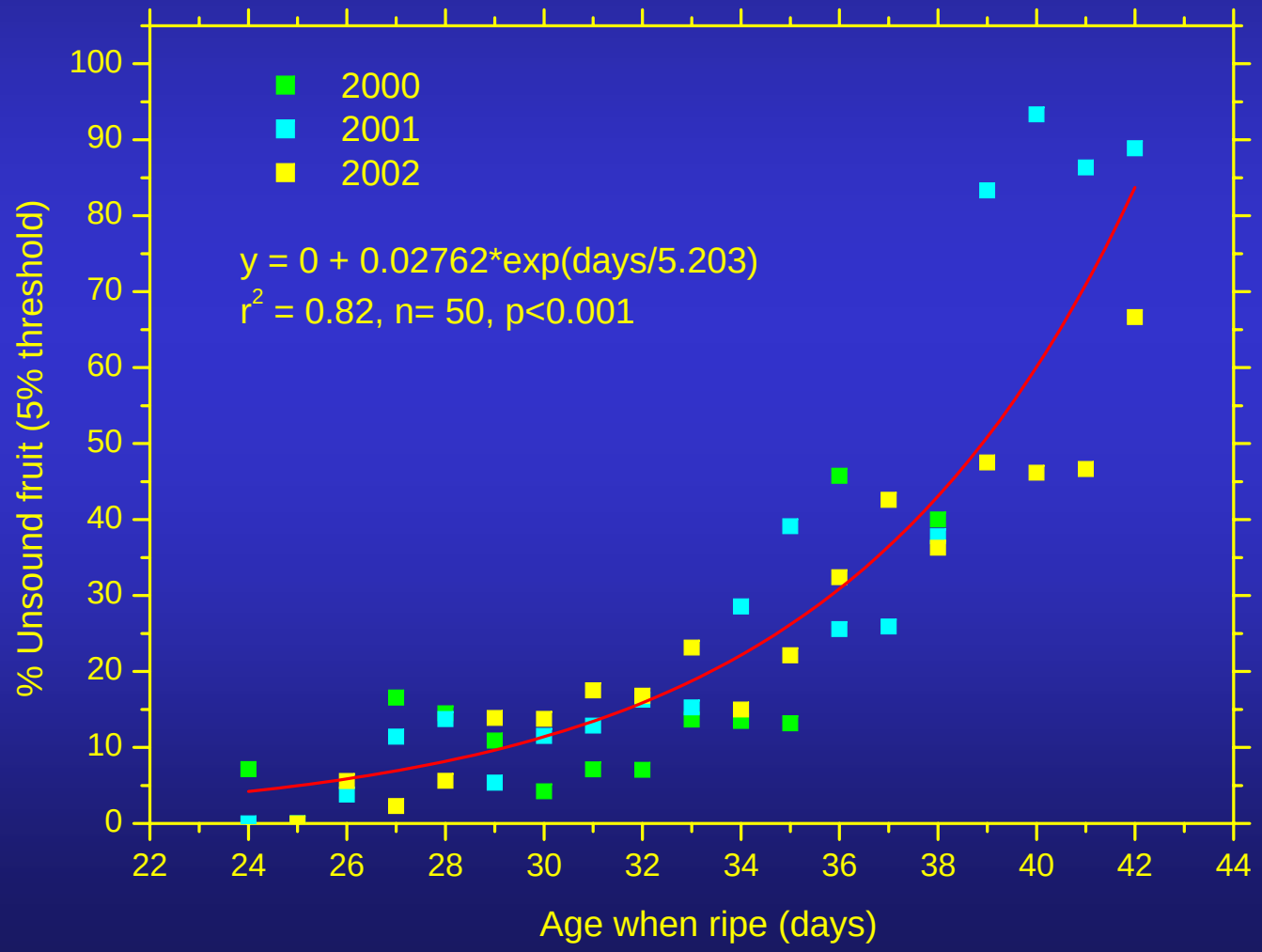
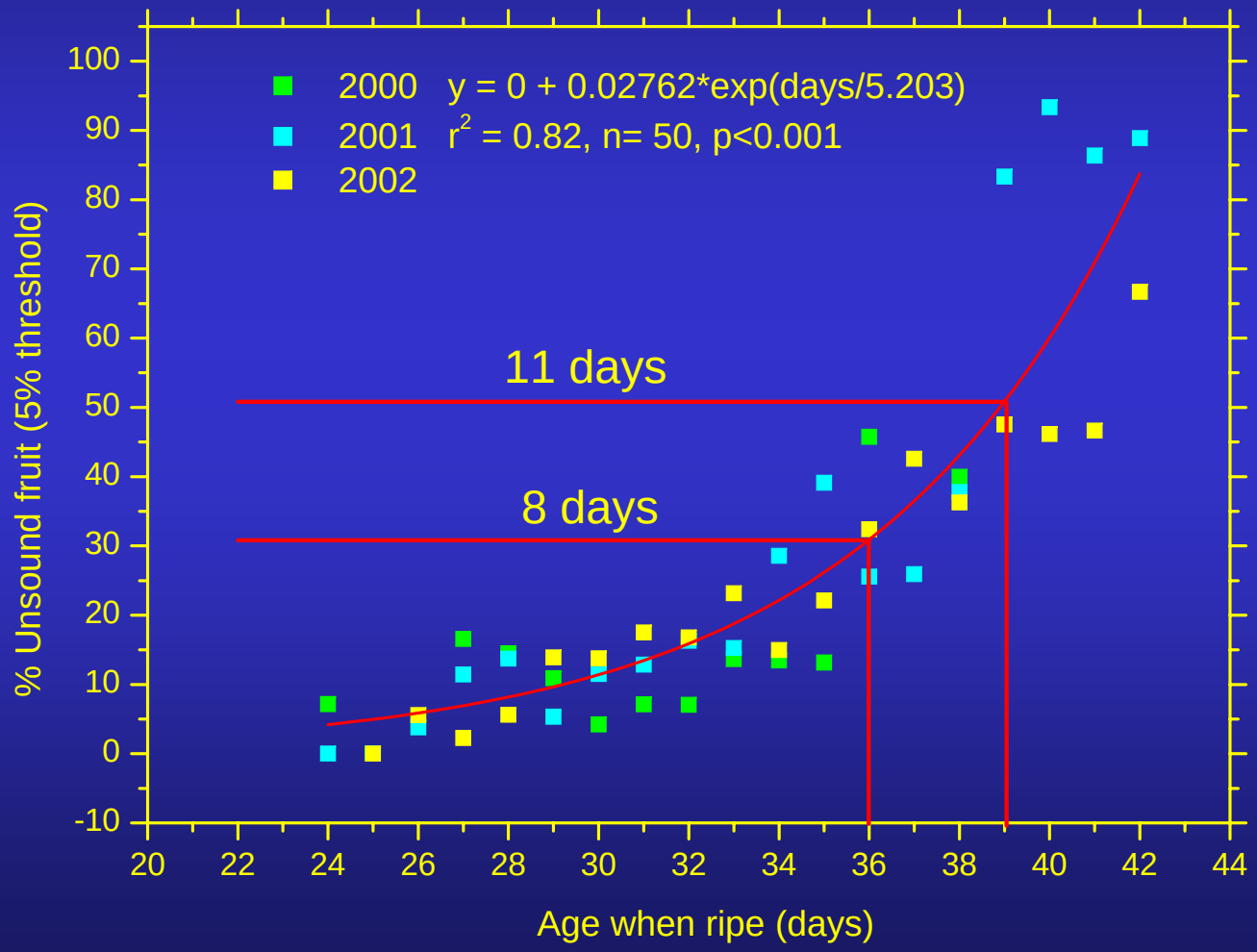
Background



Background

- 8 day consolidation 22-36 days when ripe
- 11 day consolidation 22-39 days when ripe

Background


2000 y = 0 + 0.02762*exp(days/5.203)
2001 r² = 0.82, n= 50, p<0.001
2002
11 days
8 days
% Unsound fruit (5% threshold)
Age when ripe (days)
100
90
80
70
60
50
40
30
20
10
0
-10
20
22
24
26
28
30
32
34
36
38
40
42
44

Summary

Maintain quality by manipulating fruit age

Require:

Controlled experiments to characterise the relationship between fruit quality, maturity and duration of storage

Materials and Methods

Trial	Fruit age
Harvest	Early, Mid, Late Sept, Nov, Jan, Mar
Temperature (°C)	4, 85%RH
Duration (days)	0, 7, 14, 21, 28, 35, 42

Ripened at 20°C, 60% RH

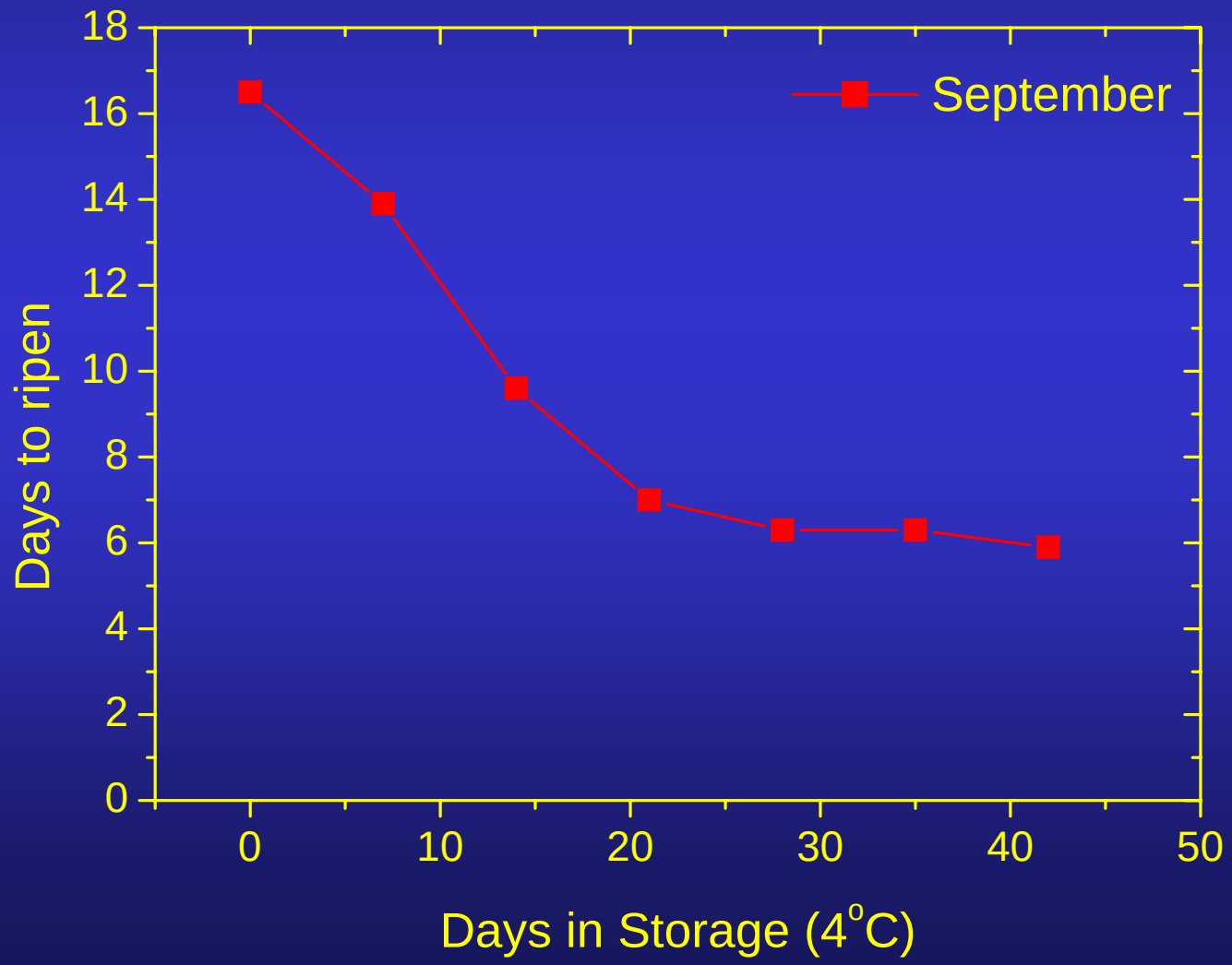
Materials and Methods

- Three orchards
- Dry matter average of a 20 fruit sample
- Fruit assessment to AIC manual
- 100 fruit per orchard per harvest per storage period

Results and Discussion

Month	Dry Matter (%)
September	24.2
November	28.3
January	33.1
March	33.2

Results and Discussion



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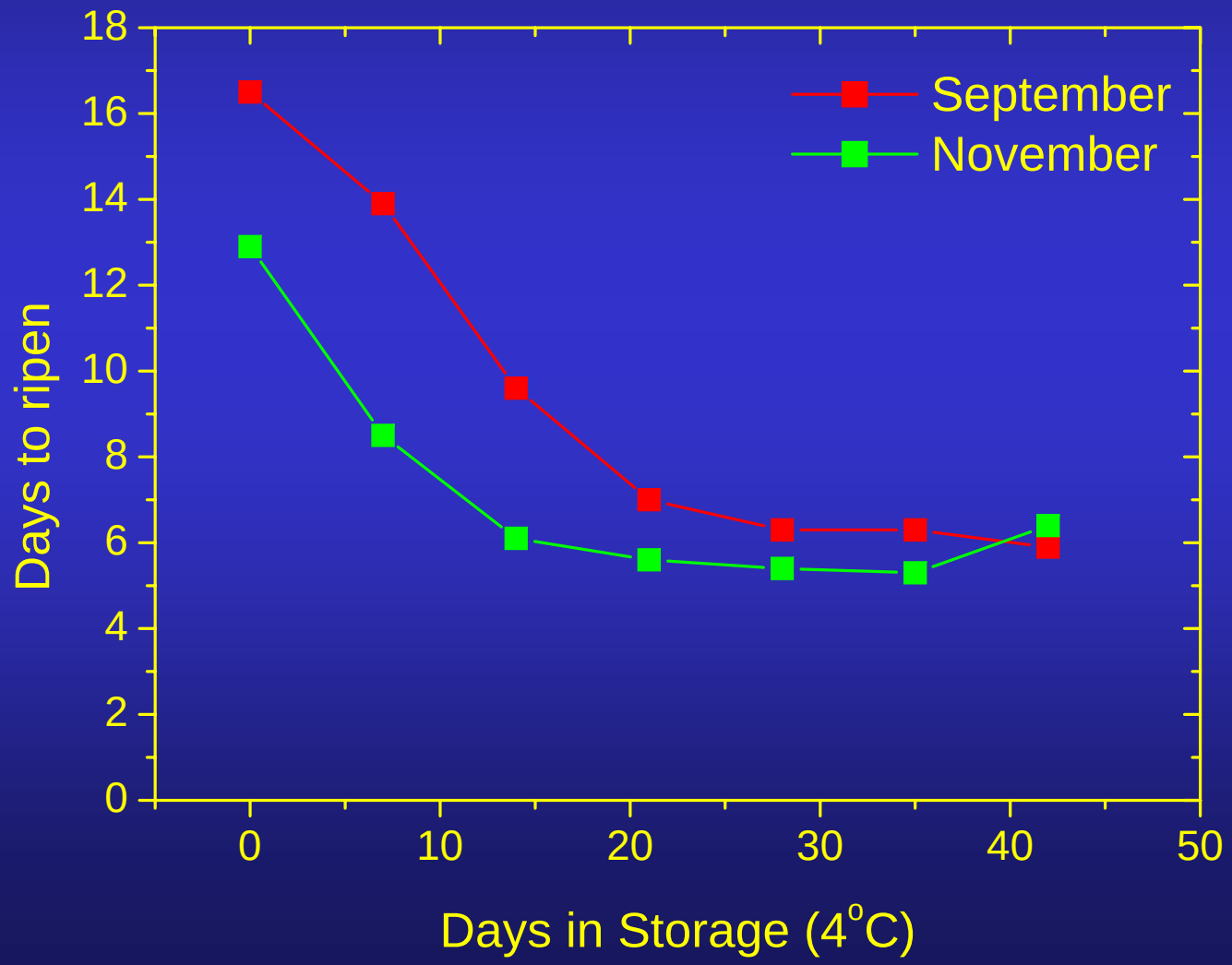

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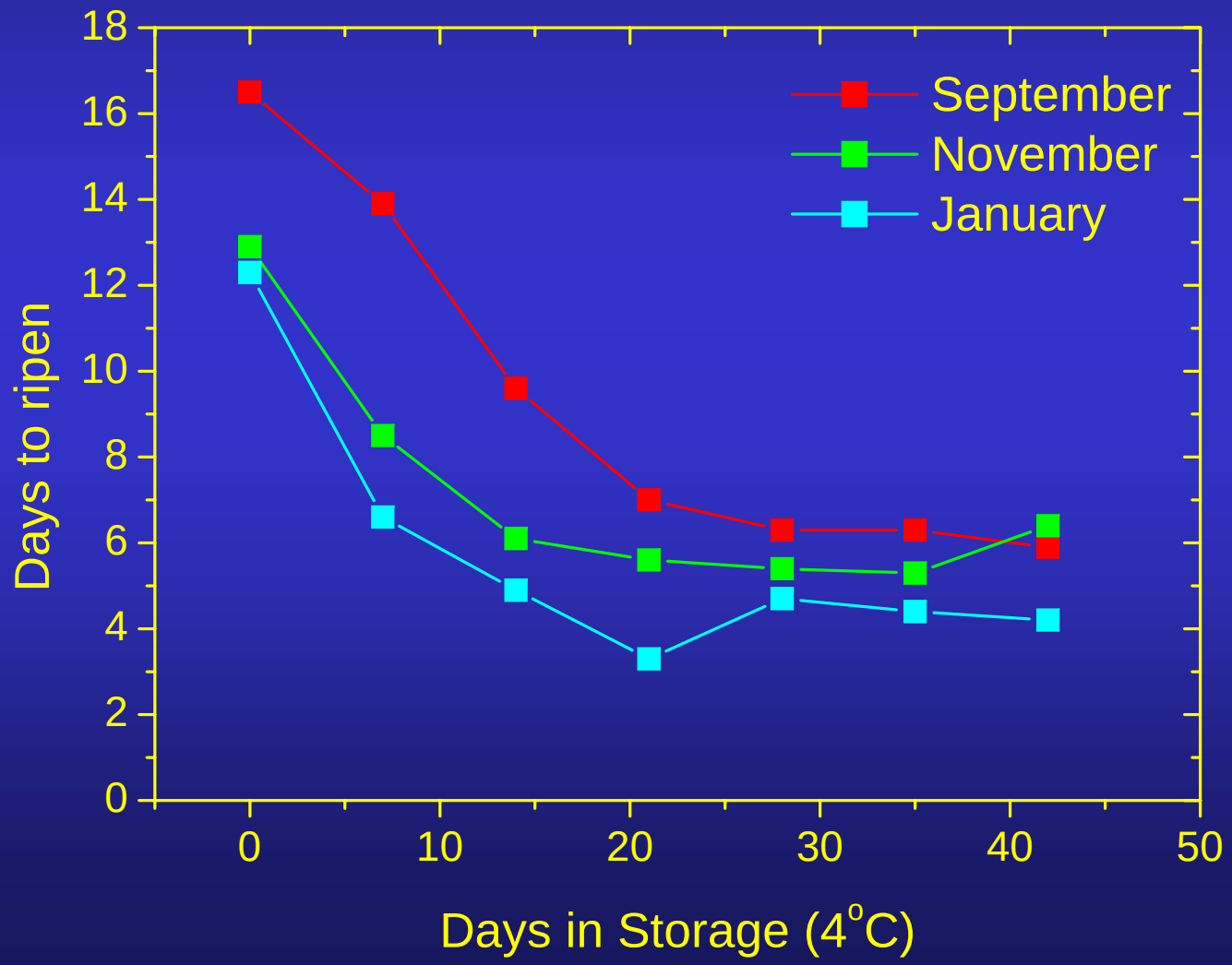

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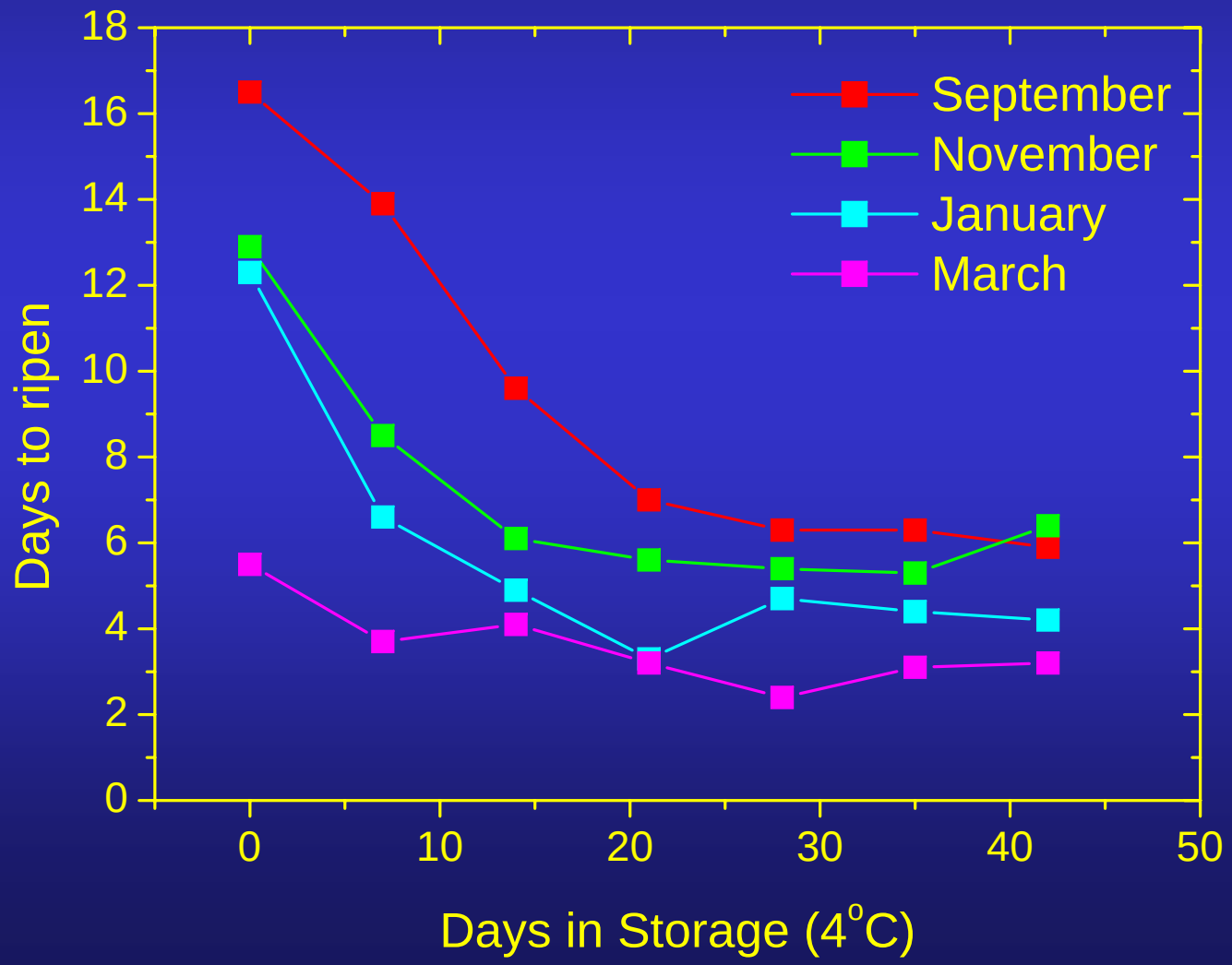

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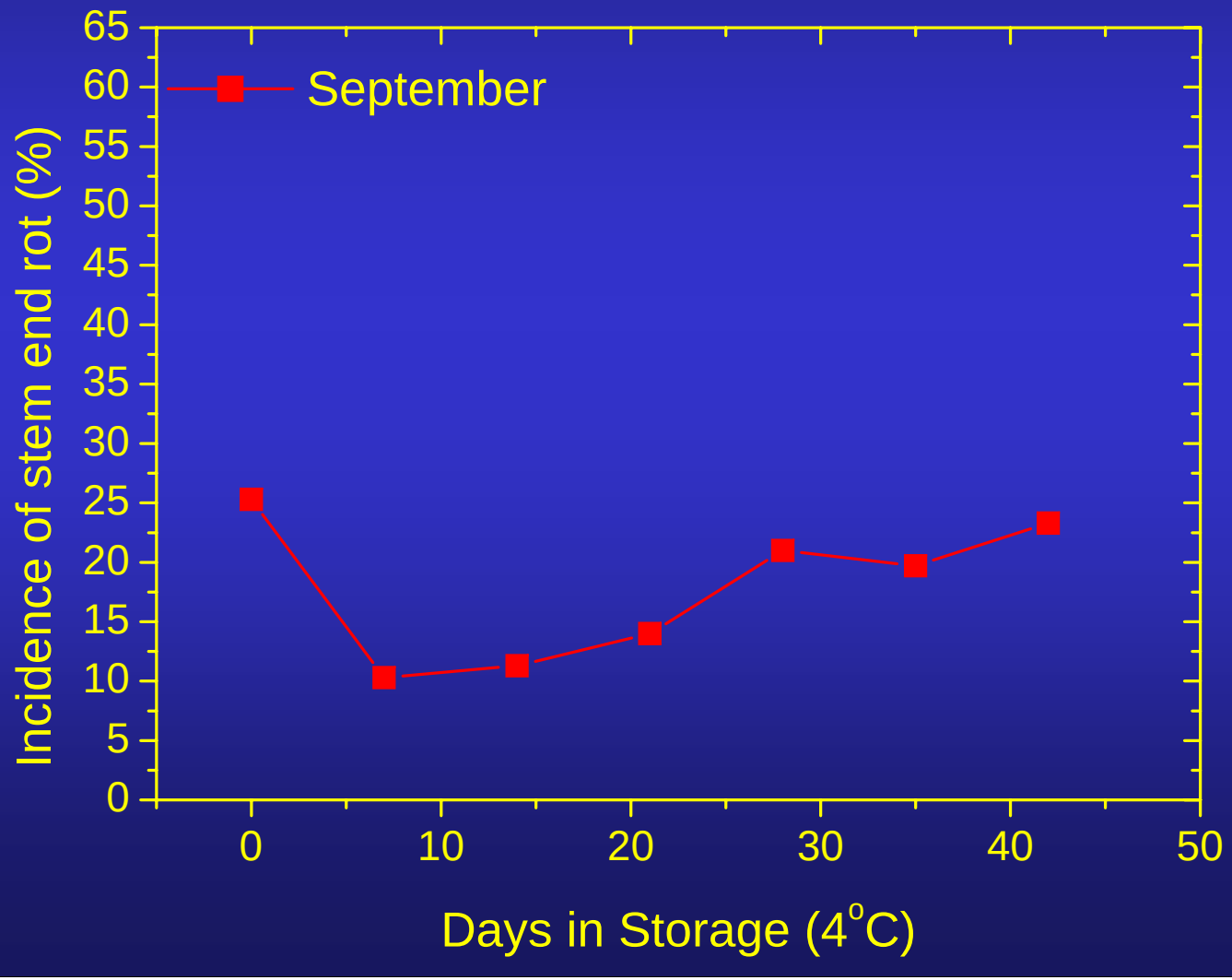

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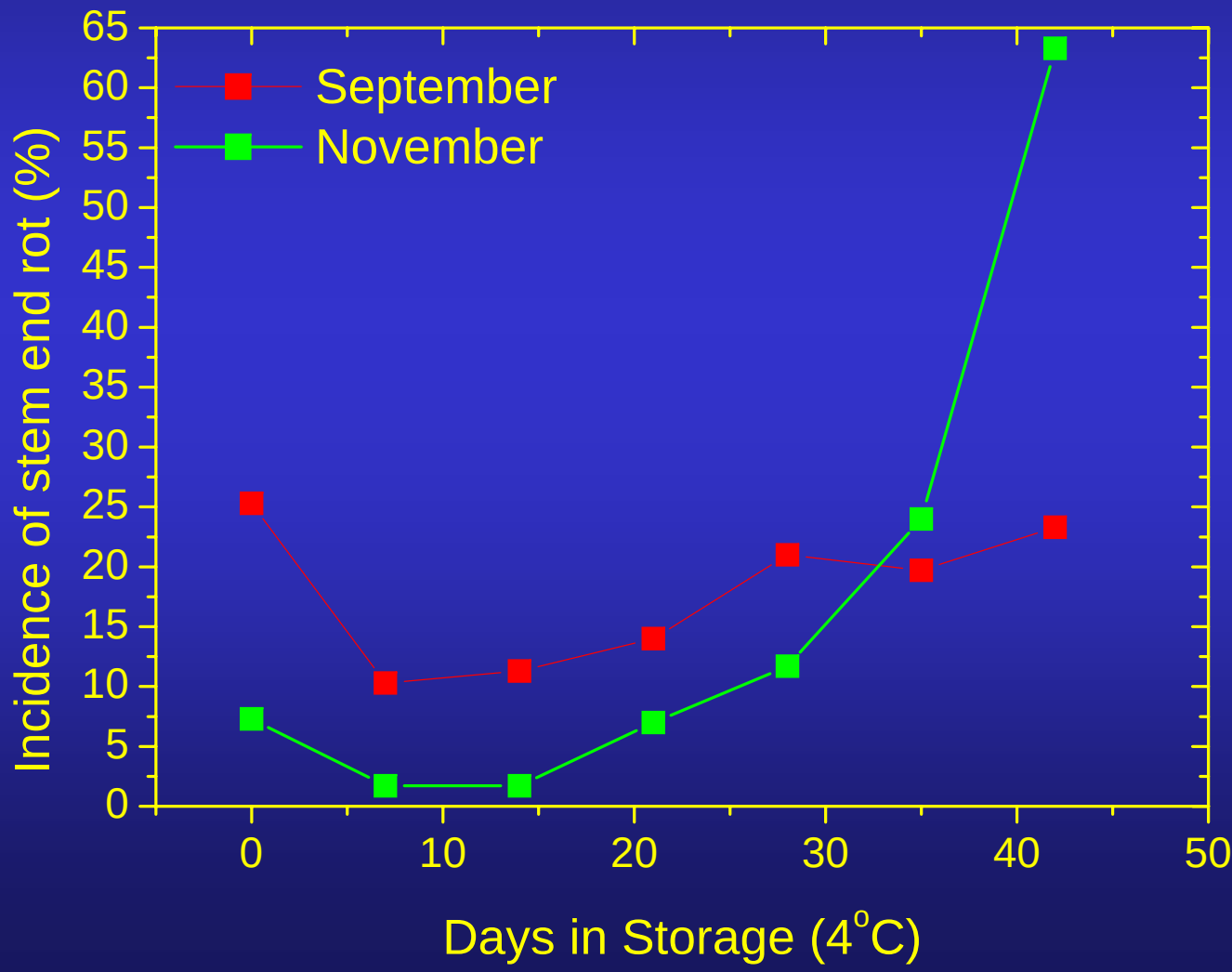

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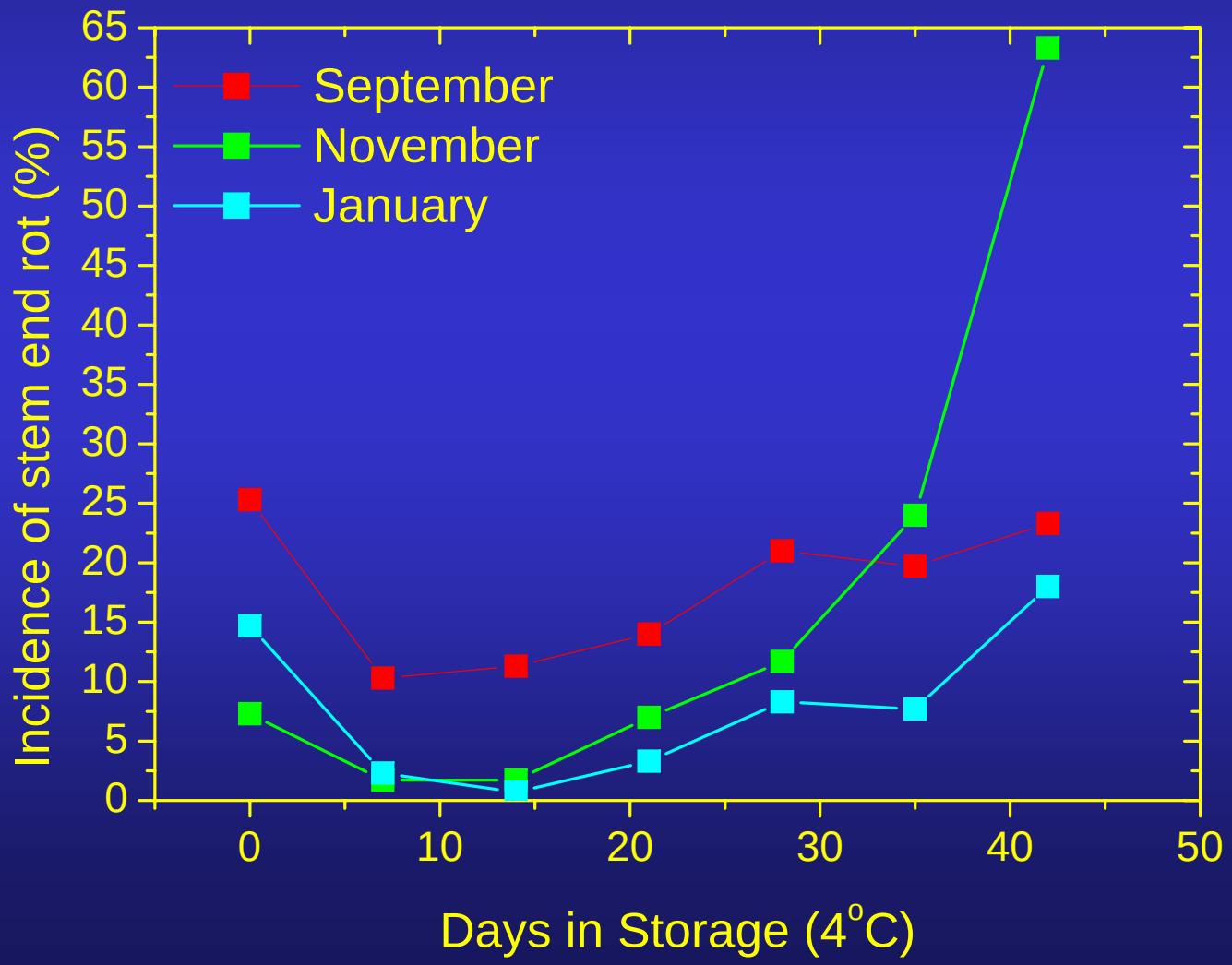

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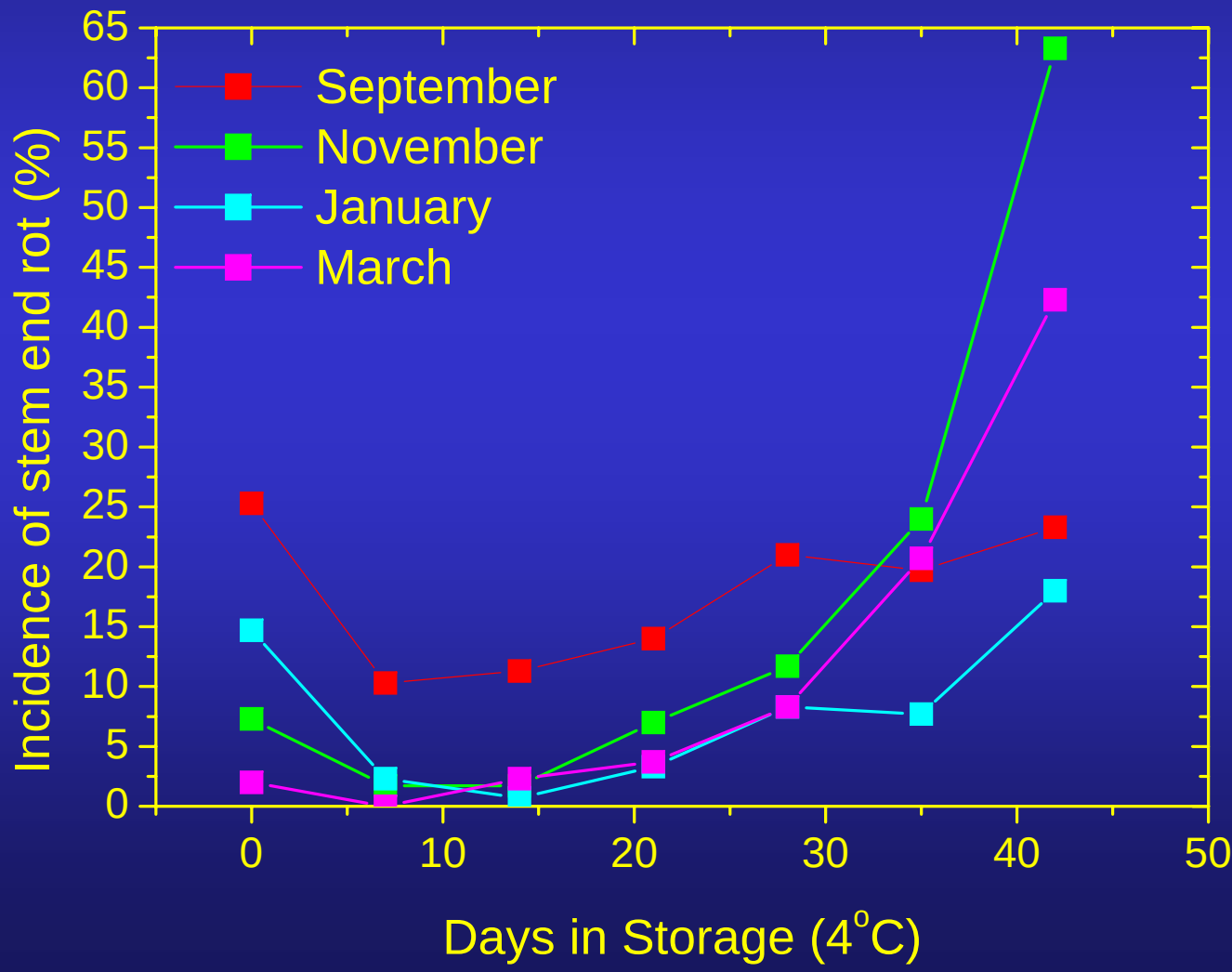

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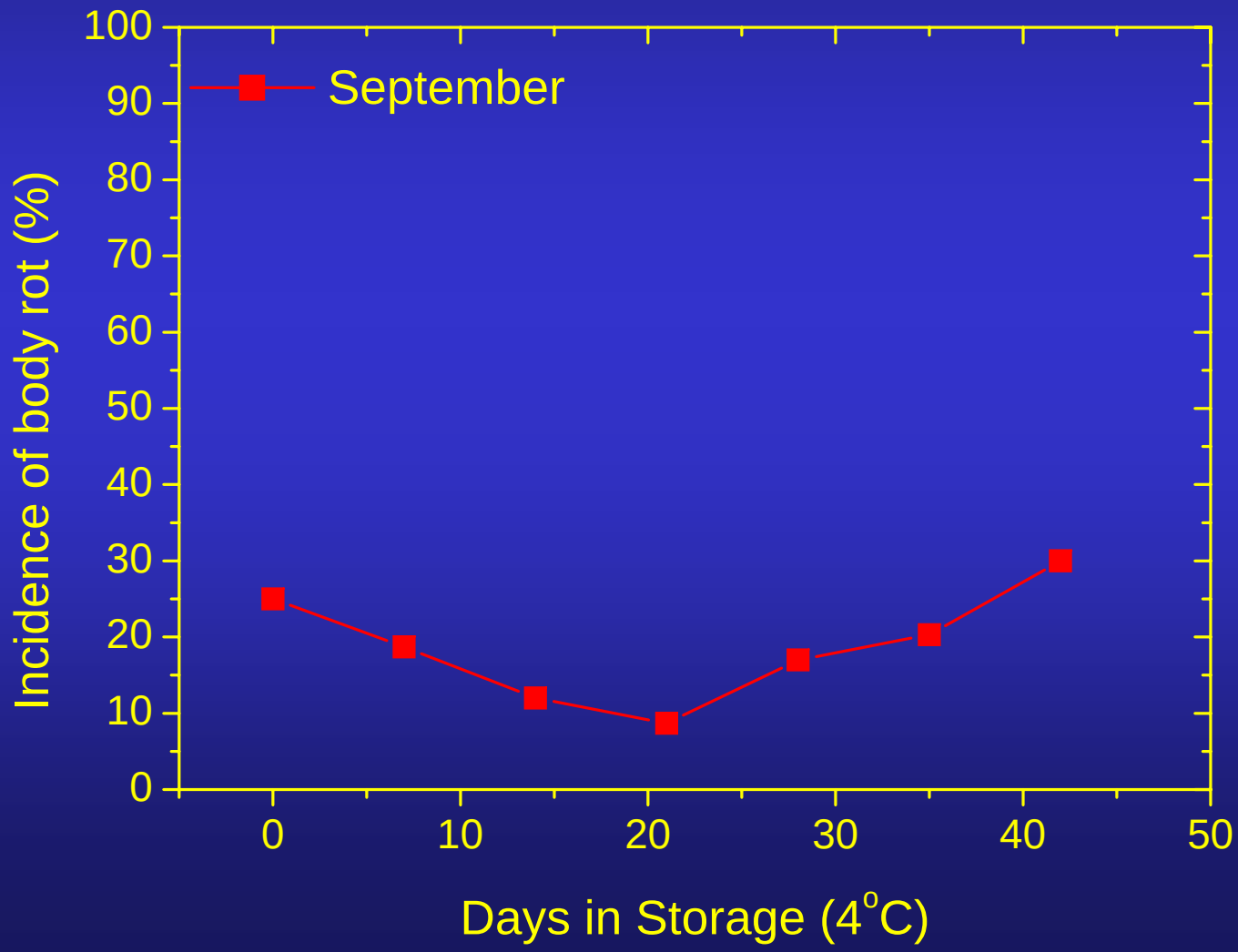

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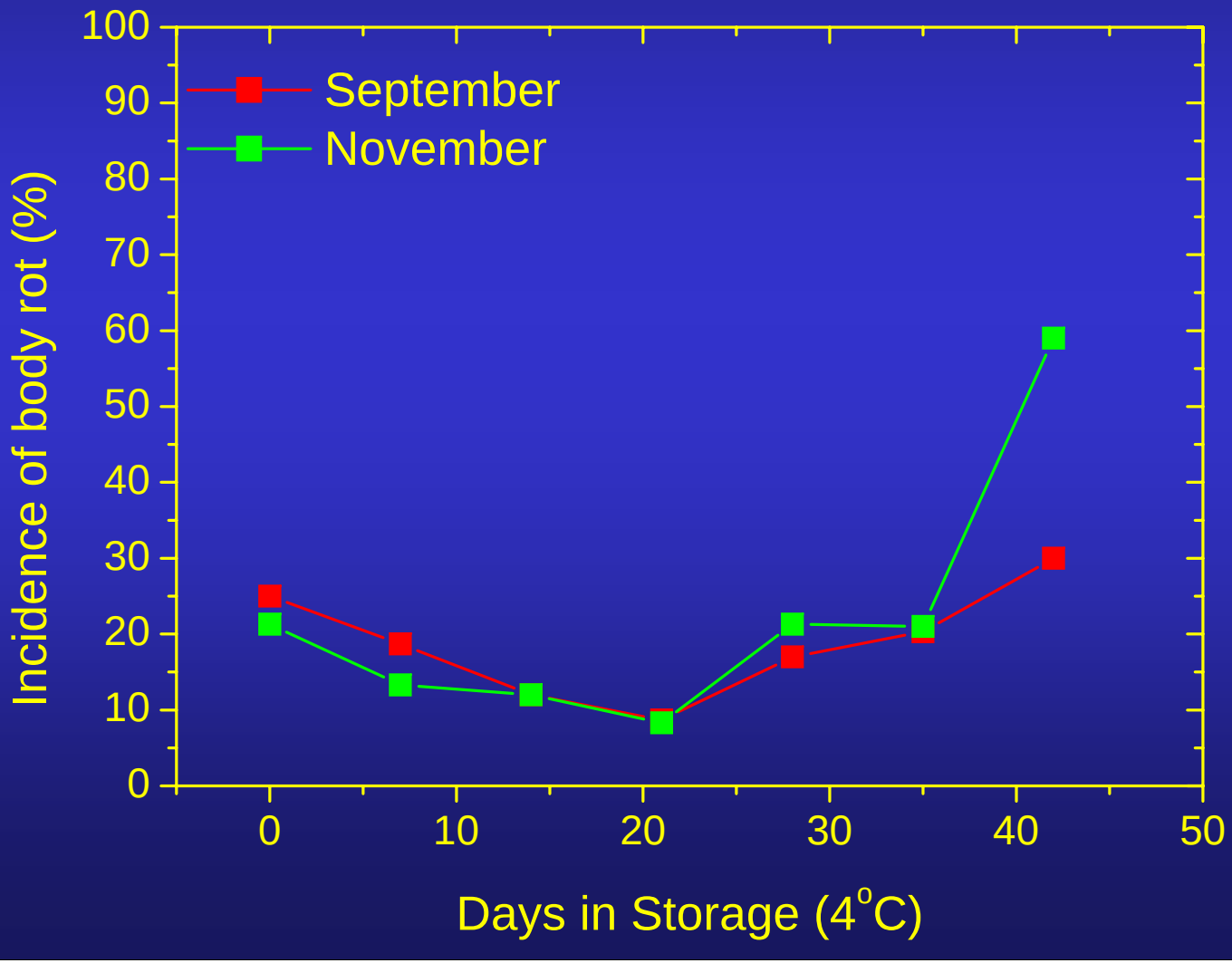

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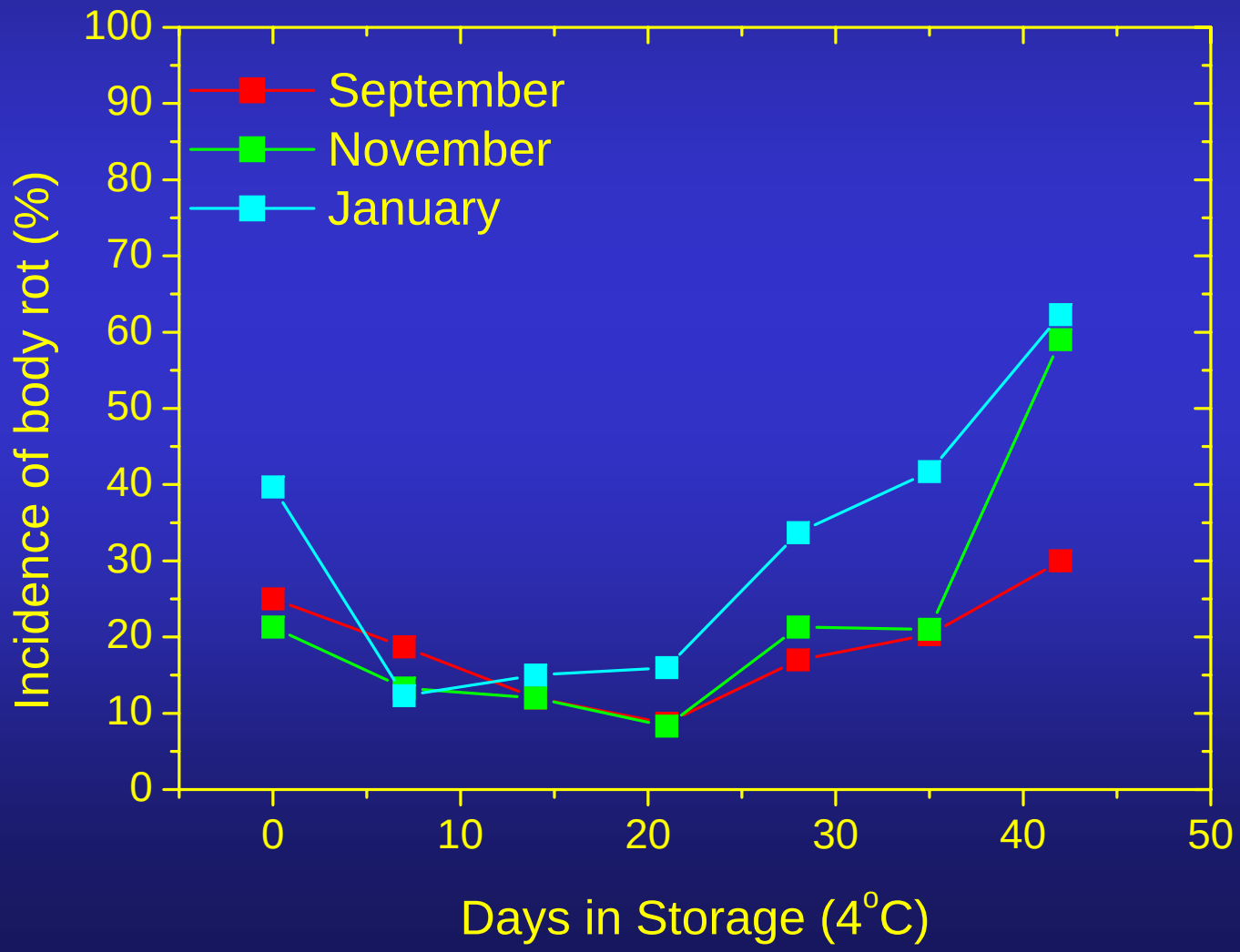

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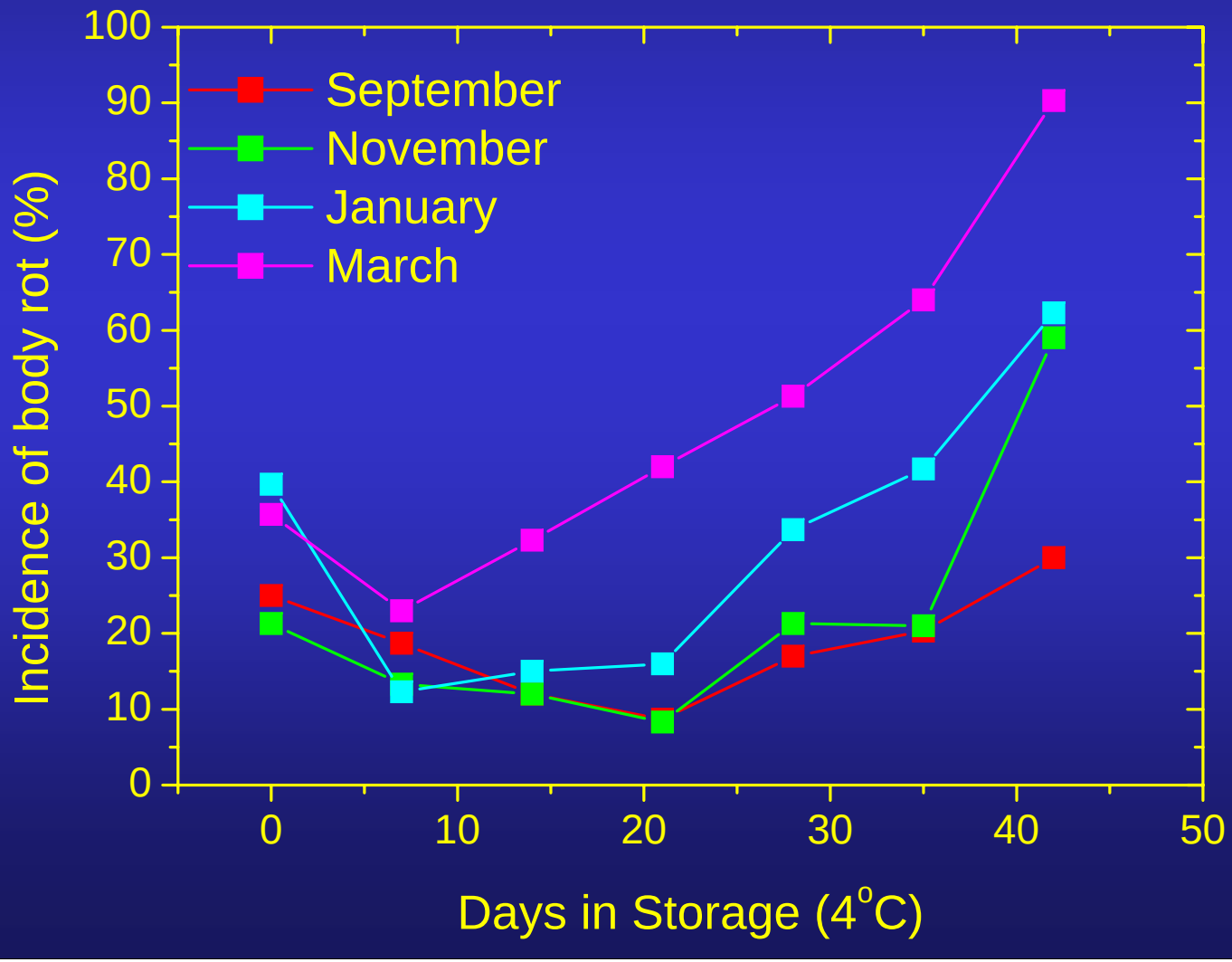

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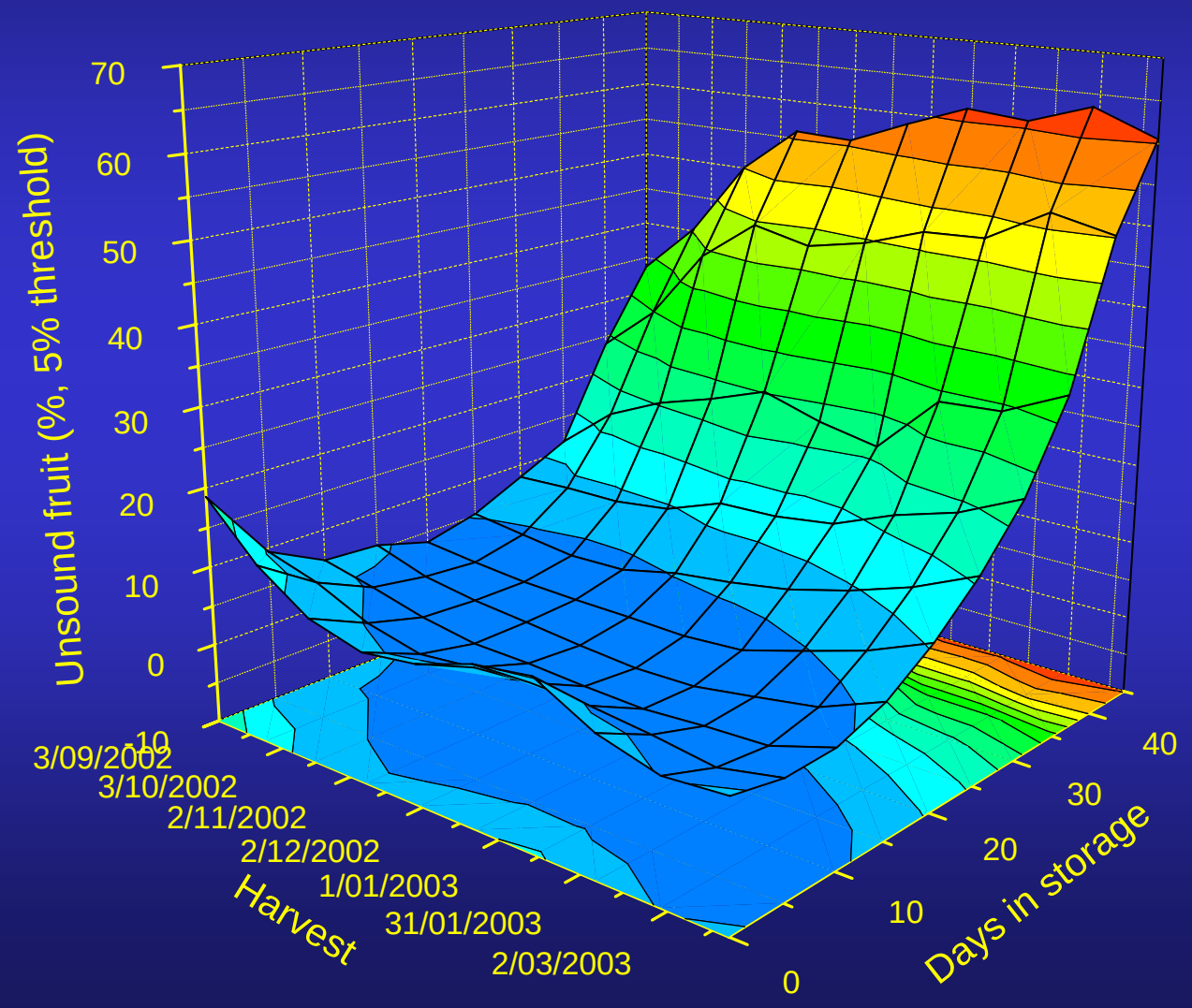

Conclusions

- These results suggest that for optimal fruit quality time in coolstorage should not exceed

  21 days from September to January

  7 days in March

- Coolstorage for 7 days is benefical in reducing rots

Outcome

Onshore consolidation times have been updated yearly by the avocado industry

Year	Australia Container[a]	Other (USA etc) Container[a]	Reefer[a]
2000	14	8	11
2001	14	7	11
2002	12	7	11
2003	11 (31 Dec) 9 (Jan) 7 (Feb)	7	8

[a] days to scheduled sailing