

2005

Research Update Meeting 2005 - Flooding Effects on Cranberry Uprights 2005

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Recommended Citation

Vanden Heuvel, Justine, "Research Update Meeting 2005 - Flooding Effects on Cranberry Uprights 2005" (2005). *Cranberry Station Extension meetings*. 18.
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Flooding Effects on Cranberry Uprights

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Cranberry Station



Short-term Objective

- To determine the effect of late water, flash, and harvest floods on total non-structural carbohydrate concentration of cranberry uprights



Long-term Objective

- To develop a model to predict the effect of flooding on yield of cranberry uprights



Methods

- Floods investigated:
 - Late Water (1 mo. Duration, Mid-April to Mid-May)
 - Flash (48 hours, Mid-Late May)
 - Harvest (varying duration, Sept-Nov)

- Uprights collected immediately prior to and following the flood

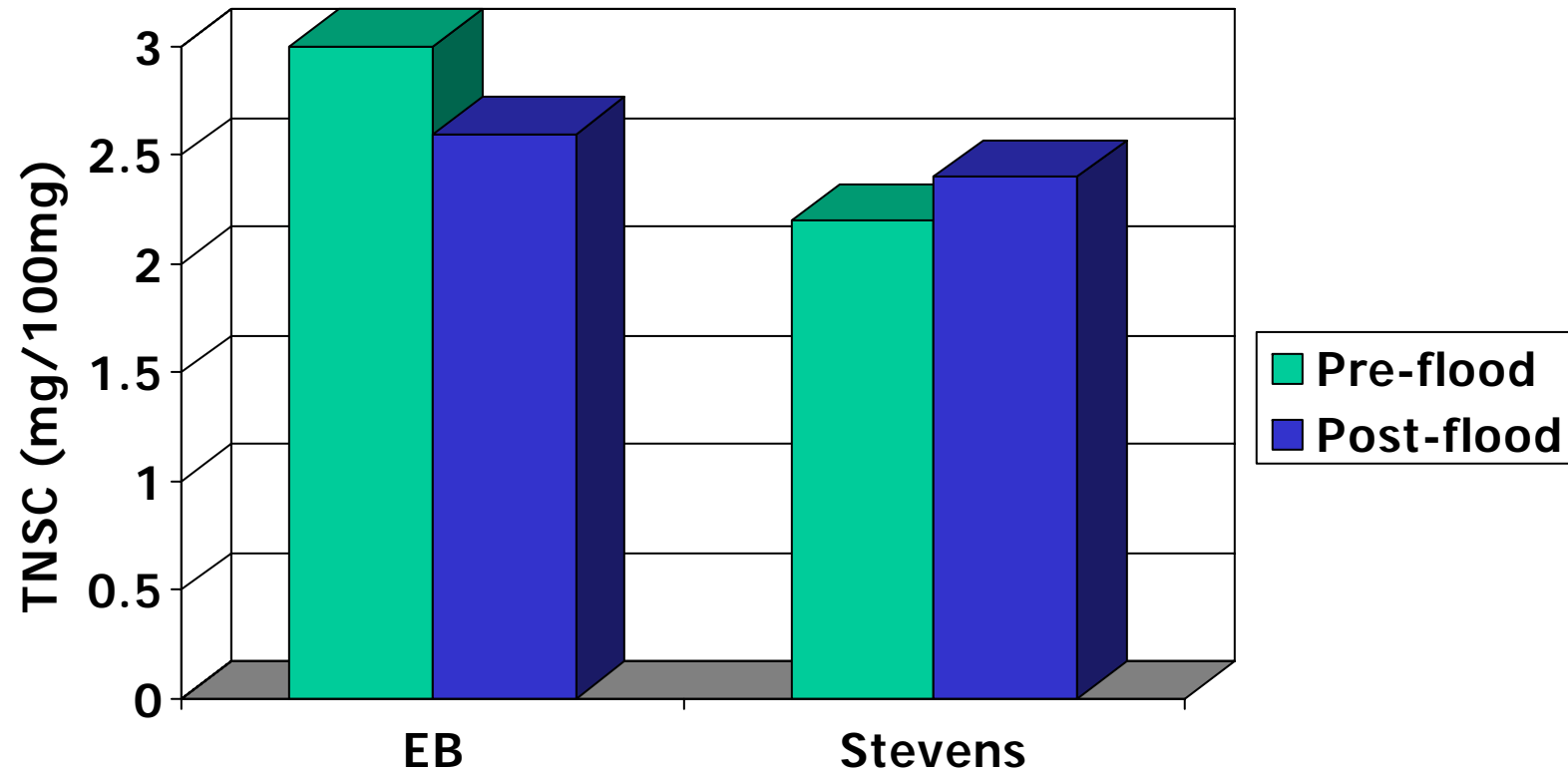


Methods

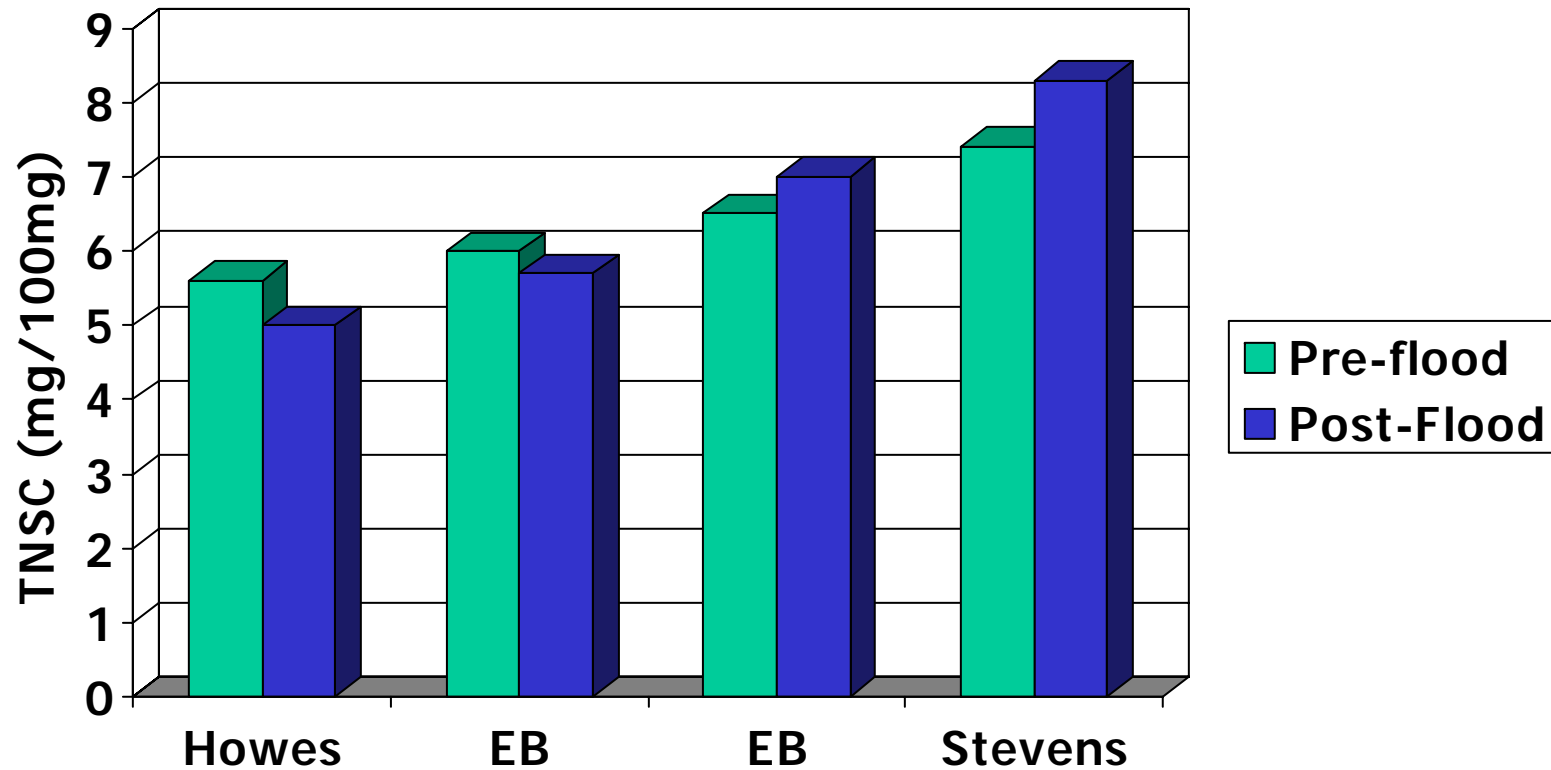
- Flood water measurements:
 - Depth
 - Temperature
 - Dissolved oxygen concentration
 - PAR penetration to vines



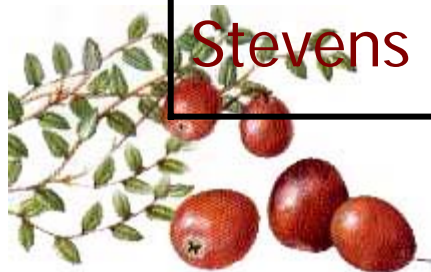
Results – 1 mo. Late Water



Results – 48 Hr. Flash floods



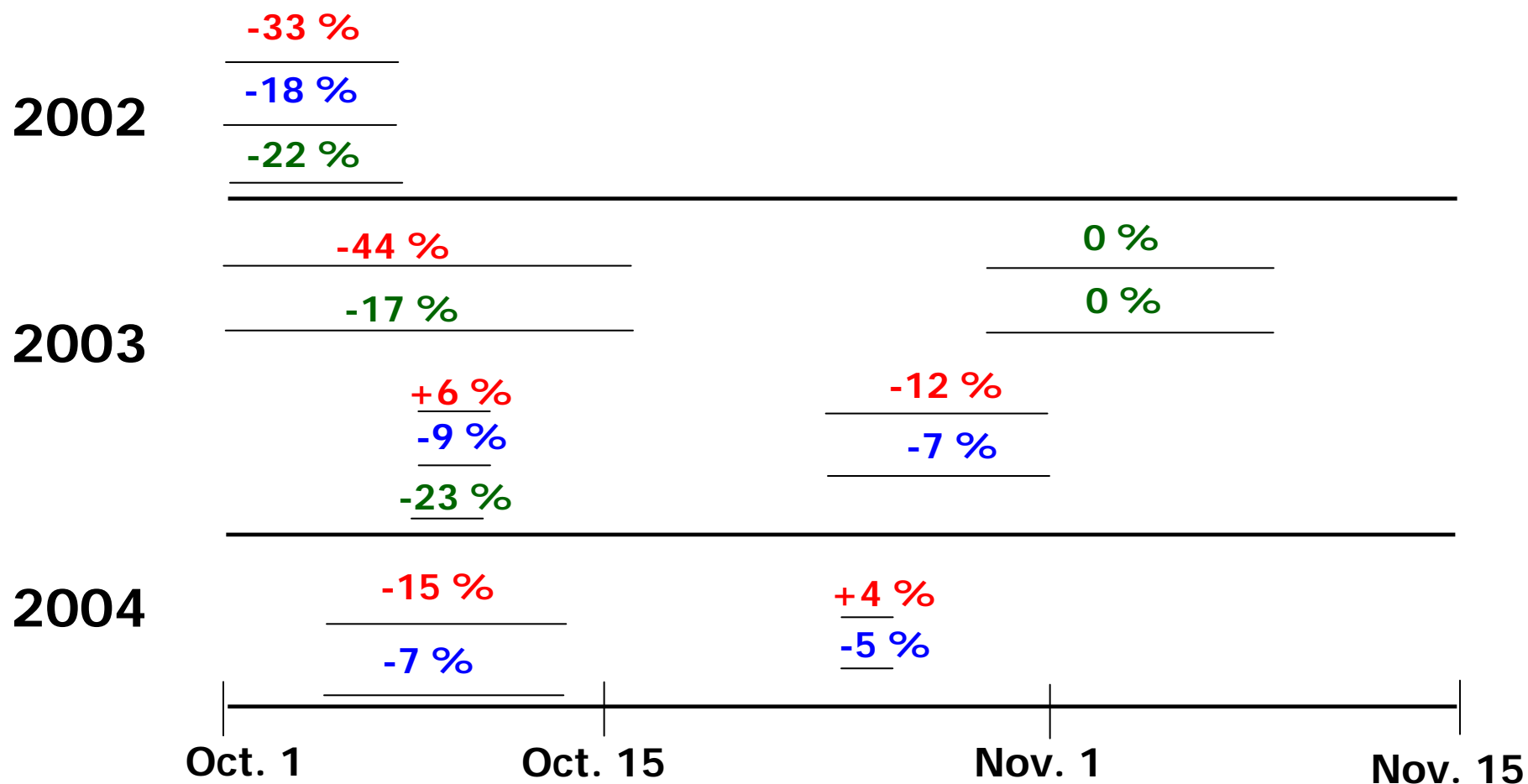
Cultivar	Bog	Dates	% Change in TNSC
EB	State Bog	Oct. 2-7/02	- 33%
Stevens	State Bog	Oct. 2-7/02	- 18%
Howes	State Bog	Oct. 2-7/02	- 22%
EB	State Bog	Oct. 8-11/03	+ 6%
Stevens	State Bog	Oct. 8-11/03	- 9%
Howes	State Bog	Oct. 8-11/03	- 23%
EB	State Bog	Oct. 5-13/04	- 15%
Stevens	State Bog	Oct. 5-13/04	- 7%



Cultivar	Bog	Dates	% Change in TNSC
EB	MP 1	Oct. 1-16/03	- 44%
Howes	MP 1	Oct. 1-16/03	- 17%
EB	MP 2	Oct. 23-30/03	- 12%
Stevens	MP 2	Oct. 23-30/03	- 7%
EB	MP 2	Oct. 21-24/04	+ 4%
Stevens	MP 2	Oct. 21-24/04	- 5%
Howes	MP 3	Oct. 28-Nov. 9/03	0%
Howes	MP 4	Oct. 28-Nov. 9/03	0%



Results – harvest floods



EB Stevens Howes



Results – Harvest floods

- Earlier fall floods had a more negative impact on TNSC than later floods
- EB was more negatively impacted by flooding than Stevens or Howes
- Low DO may not harm vines
- Low light penetration may not harm vines



Development of model

● Parameters:

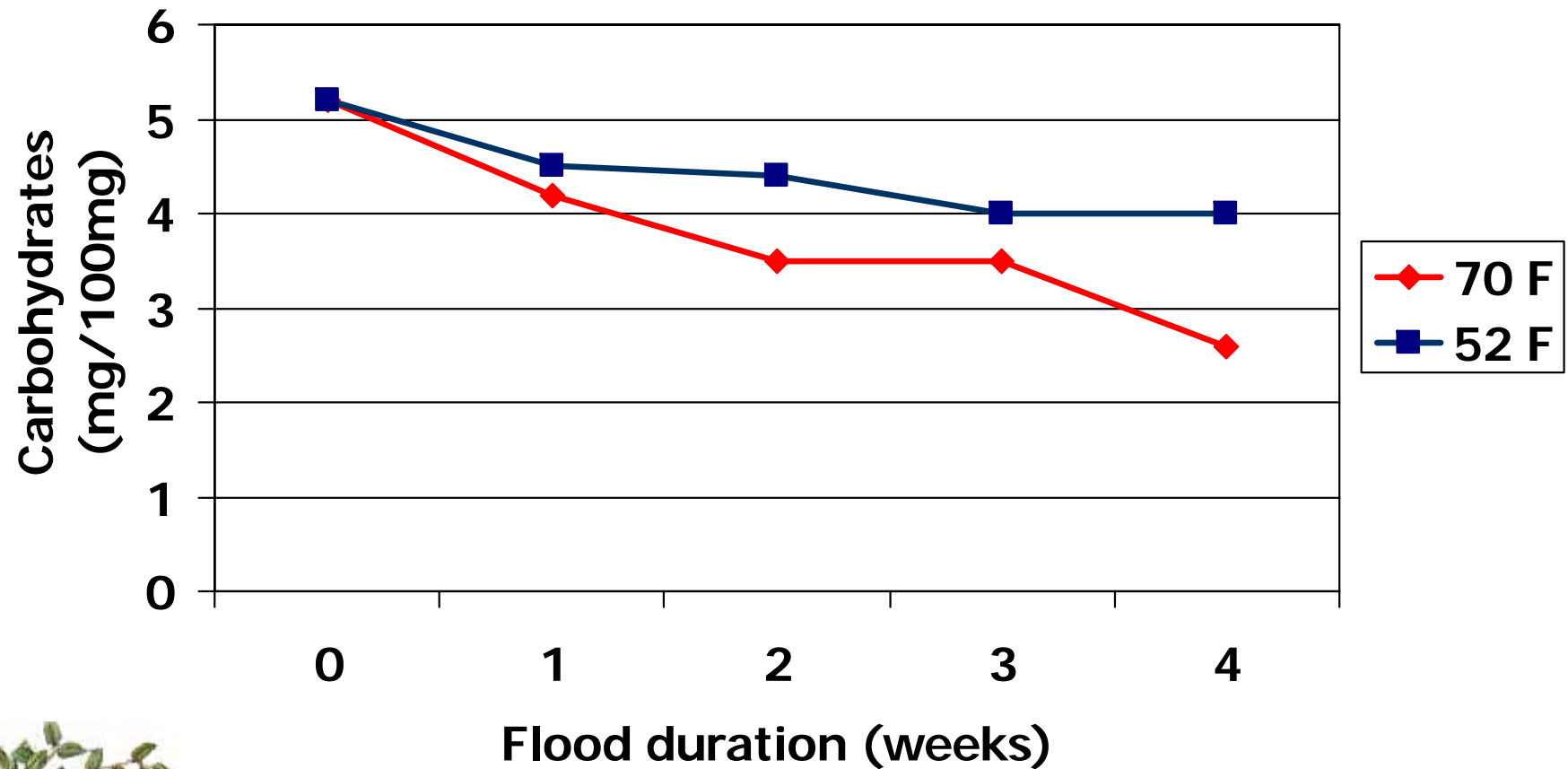
- Cultivar
- Growing degree day
- Water temperature
- PAR penetration
- DO concentration (threshold)
- Initial CHO
- Proposed flood length



Lab study – Water Temperature



Effect of Water Temp on LW uprights



Effect of Water temp

- Additional floods:
 - Flash
 - Harvest



Questions?

