



Grape Season in Review

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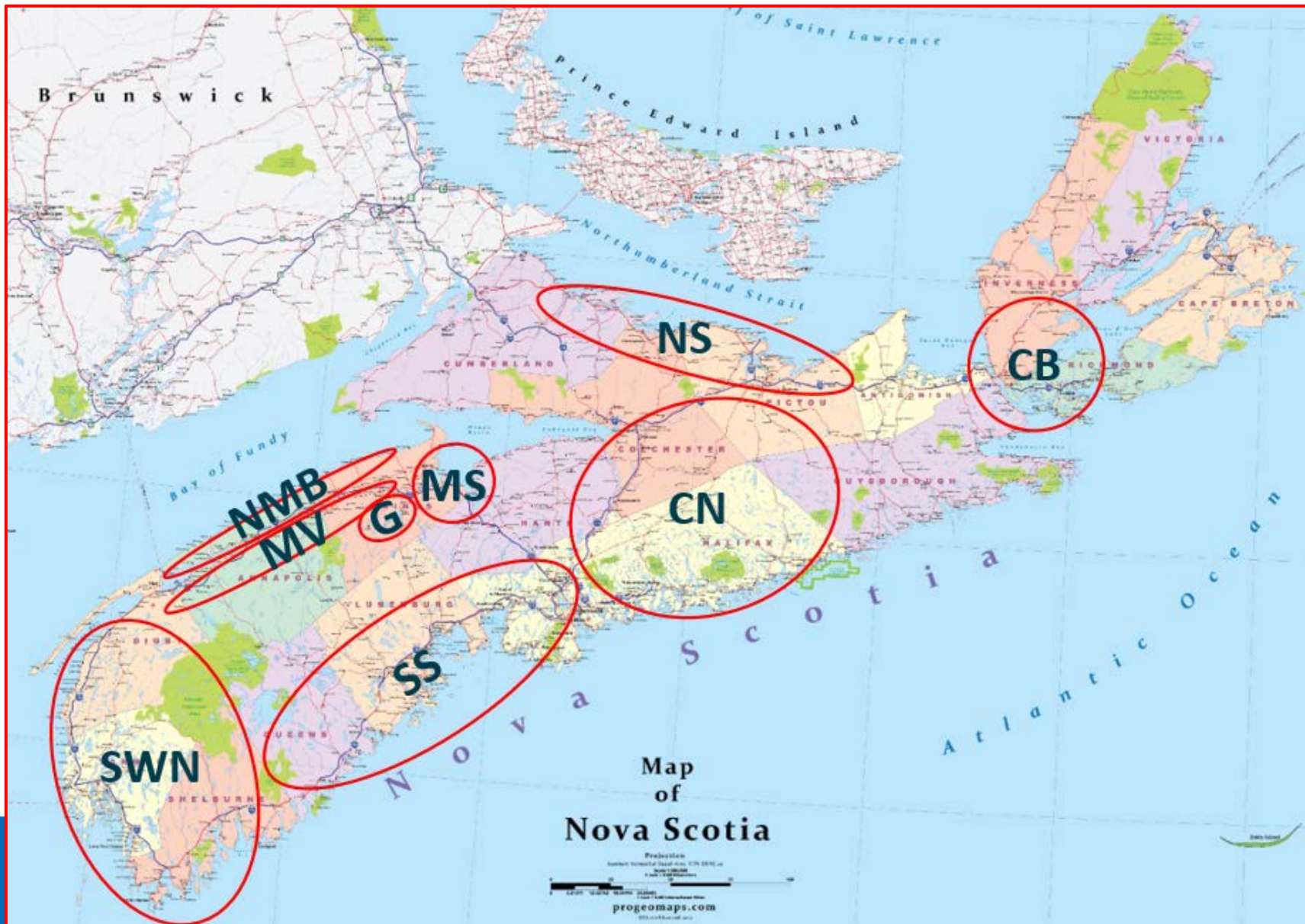
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7 December 2023

2023 Growing Season

- Highly influenced by fall 2022 and winter 2023 temperatures
 - Much warmer than normal dormant period for grapes
 - Severe weather event on Feb 03/04 2023
 - Substantial work by AAFC and Perennia on bud survival %
- Abnormal weather for whole growing season (Jeff Franklin, AAFC)
- Multiple issues to deal with due to different levels of injury
- Perennia retained viticultural consultant to assist with recovery efforts
- Outreach (surveys)
- Multiple grower in-field days throughout season (4)
- Zoom Q & A sessions (4) and blog posts (11)
- Individual site visits across entire province (50+)

Primary Grape Growing Regions in Nova Scotia



LEGEND

NMB = North Mountain Bench

MV = Mid Valley

G = Gaspereau

MS = Minas Shore

NS = North Shore

SS = South Shore

CN = Central Nova

SWN = South-West Nova

CB = Cape Breton

Information Collected

1. 50+ grower/winery replies
2. # of acres of hybrids (estimate) 1100 acres with 690 acres responding - 62%
3. # of acres of vinifera (estimate) 400 acres with 250 acres responding - 63%
4. Vine spacing data
5. Vine mortality numbers
6. Major wineries and their growers cooperated
7. Processing % 2022 versus 2023

List of Cultivars Observed

Vinifera

• White

- Chardonnay
- Riesling
- Sauvignon Blanc

• Red

- Pinot Noir
- Pinot Meunier
- Cabernet Franc
- Gamay Noir

Hybrids

• White

- L'Acadie Blanc
- New York Muscat
- Seyval Blanc
- Vidal Blanc
- Geisenheim 318
- Frontenac (incl F. Gris, F. Blanc)
- Osceola Muscat

• Red

- Marechal Foch
- Marquette
- Leon Millot
- Lucie Kuhlmann
- Baco Noir
- Castel
- Petite Pearl
- Triomphe

Acreages Reported

| Cultivar | Vinifera (Acres) | Cultivar | Hybrids (Acres) |
|----------------------|------------------|----------------------|-----------------|
| Chardonnay | 156 | L'Acadie Blanc | 284 |
| Riesling | 67 | New York Muscat | 119 |
| Pinot Noir | 66 | Marechal Foch | 83 |
| Ortega | 22 | Leon Millot | 71 |
| Cabernet Franc | 16 | Seyval Blanc | 62 |
| Sauvignon Blanc | 14 | Geisenheim 318 | 53 |
| Pinot Meunier | 13 | Lucie Kuhlmann | 48 |
| Siegerrebe | 6 | Marquette | 44 |
| Siegfried | 6 | Vidal Blanc | 44 |
| Gamay | 5 | Frontenac Blanc | 38 |
| Scheurebe | 5 | Baco Noir | 37 |
| | | Petite Milo | 26 |
| | | Osceola Muscat | 24 |
| TOTAL acreage | 376 | TOTAL acreage | 933 |

Categories of Evaluation

Evaluation of vineyards has been done using visual evaluation to assess vine survival, health and productivity

- **RECOVERY**

- Some crop in 2023

- **RENEWAL**

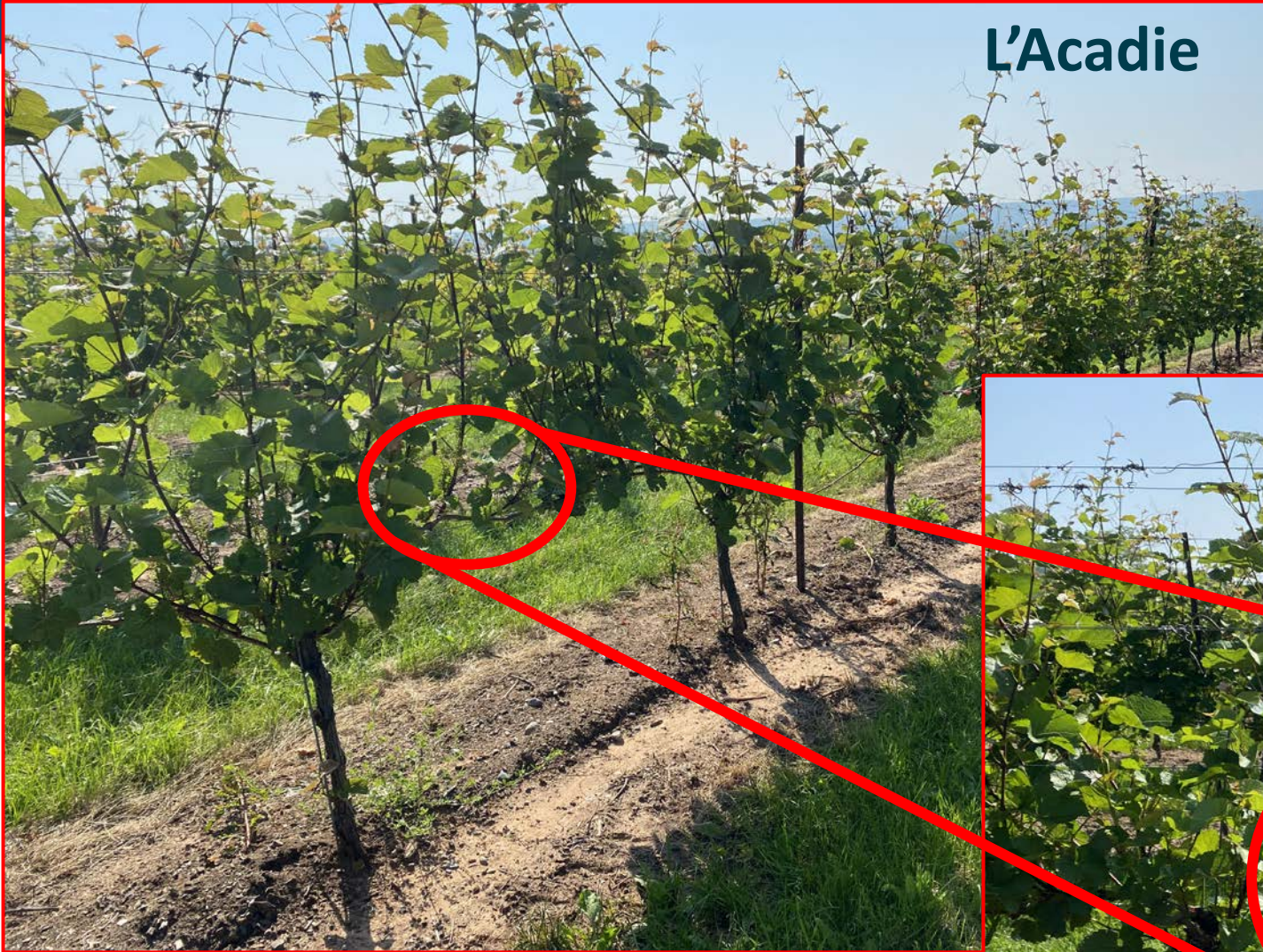
- From the head
- From the base

- **REPLANT**

- Individual vines
- Whole block removal and replant

L'Acadie

Recovery



May appear to have a full crop/canopy,
but still a low % of primary bud survival.

Renewal – Head Growth

New York Muscat

Geisenheim 318

Seyval

Renewal – Sucker Growth

Early Season



Late Season

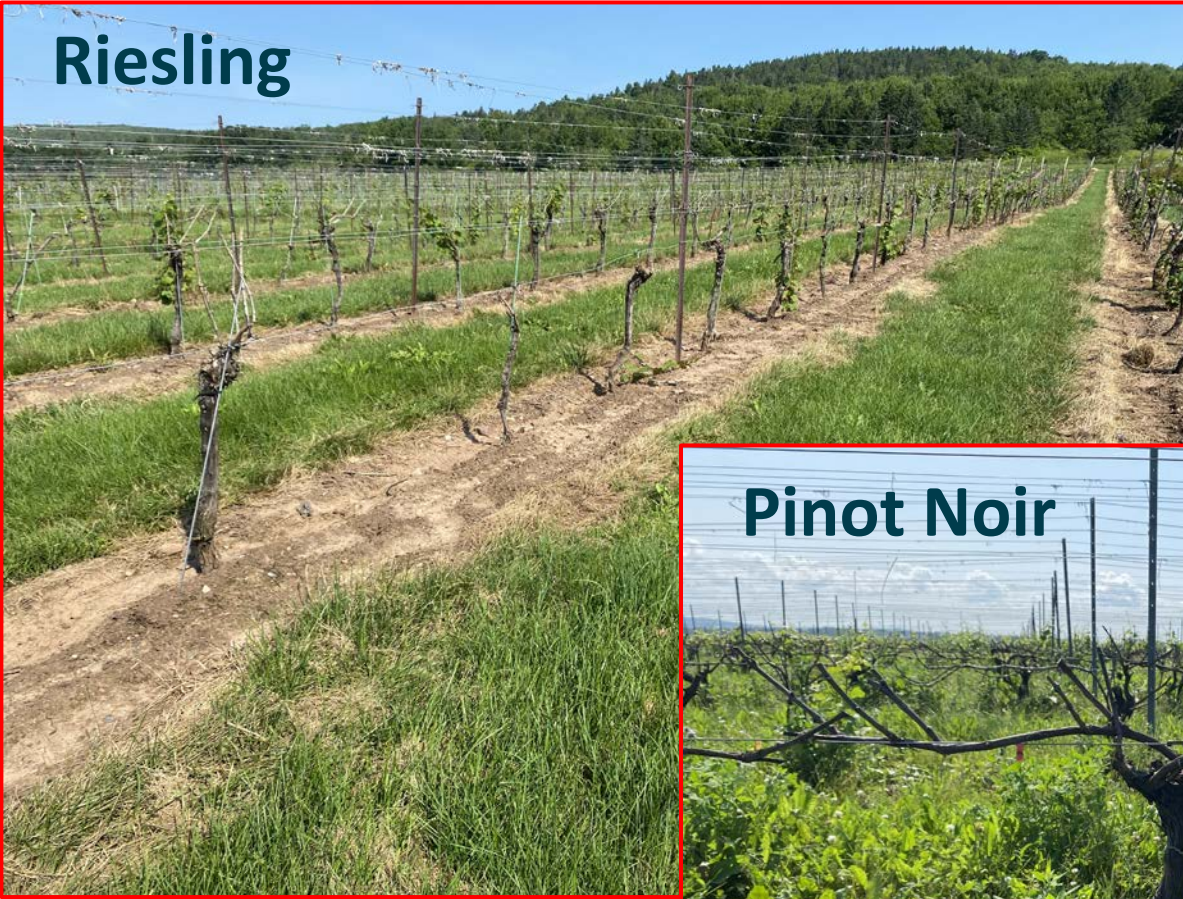


Replant – Some Vine Death



Replant – Full (> 60% vine death in 2023)

Riesling



Chardonnay



Pinot Noir



Vine Spacing

There is no standard vineyard plant spacing - for purposes of the calculations we used in our summary report vine density of:

Hybrids (9 feet by 4.5 feet spacing) – 1, 075 vines per acre

Vinifera (8 feet by 3 feet spacing) - 1,815 vines per acre

Vine Death

| | Vinifera | Hybrids |
|--|--|---|
| Average % vine death | 45% (range of 6.5% to 100%) 45% X 726,000 = 326,700 dead vines | 6% (range of 2% to 63%) 6% X 1,182,500 = 70,950 dead vines |
| Average % suckers (for renewal) | 36.4% (range of 0% to 90%) | 14.2% (range of 0% to 85%) |
| Average % low crop | 0% (no crop harvested in 2023) | 100% of hybrid acreage had reduced crop with average production at 51.3% (30% to 60%) |
| Average % yield | 0% | 33% to 56% |

Processing % 2022 versus 2023

Multiple wineries were approached and responded with preliminary processing tonnages

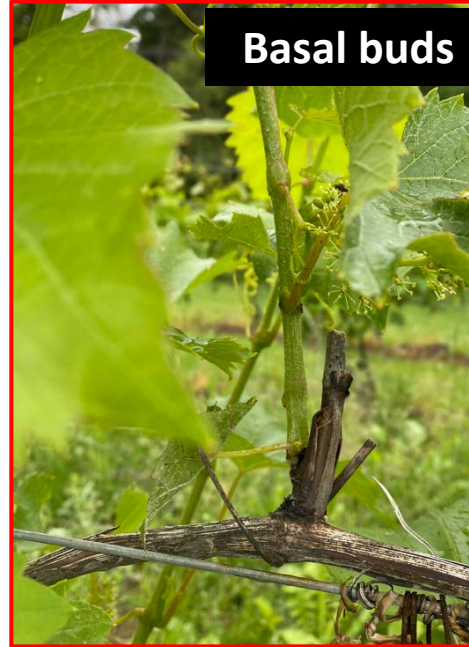
- There were no vinifera grapes harvested in 2023 (1 tonne)
- Hybrid processing ranged from 33% to 56% (2023 versus 2022) based on processor
- Using the sum of hybrids processed the median average was 46% (2023 versus 2022)

Challenges - Pruning

Long spurs



Basal buds



Few canes



Multiple canes, extra long, overlapping

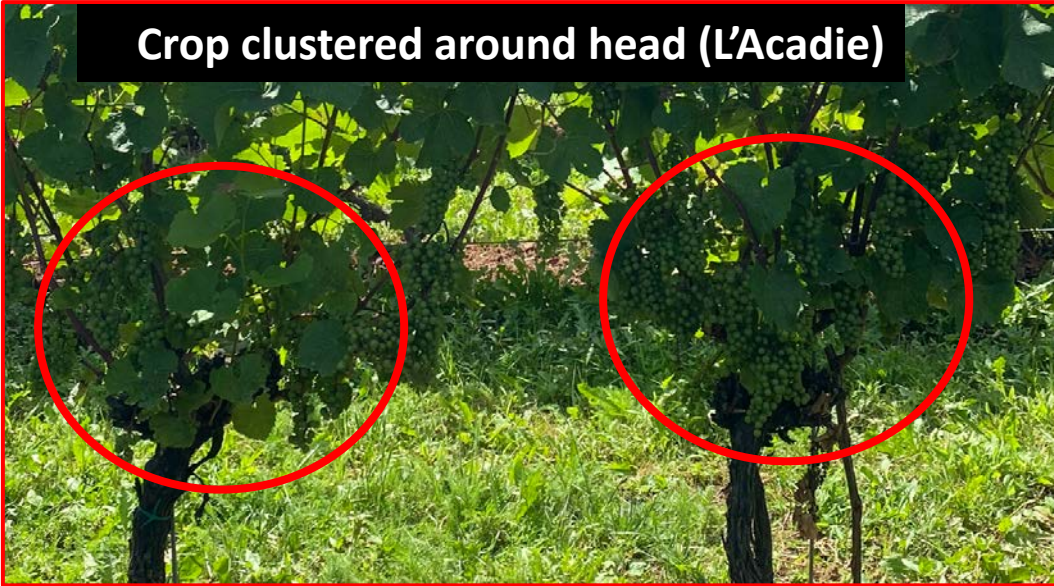


No pruning



Challenges – Uneven Crop

Crop clustered around head (L'Acadie)



Frontenac Blanc



Osceola Muscat



Challenges – No Crop

Vinifera

Hybrids

No crop (Chardonnay)



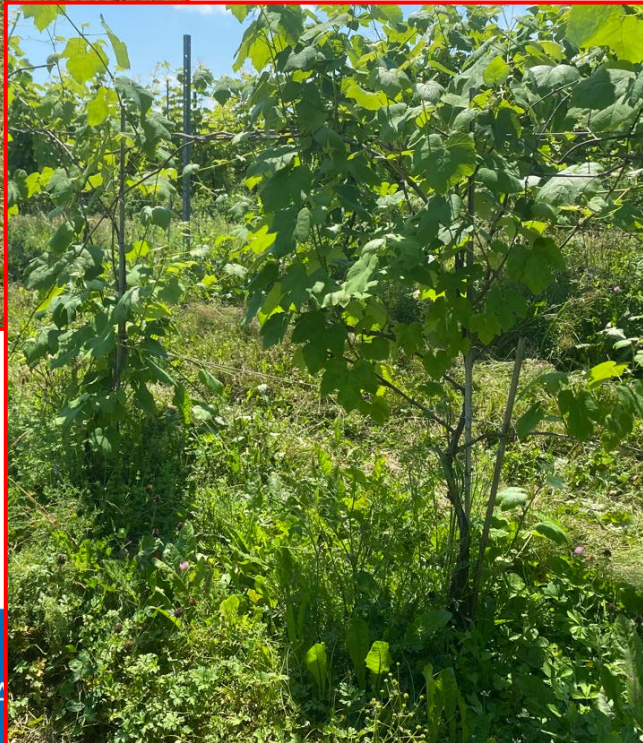
No crop (New York Muscat)



Some Crop (L'Acadie)



Challenges – Weed Control



Weather Challenges in 2023

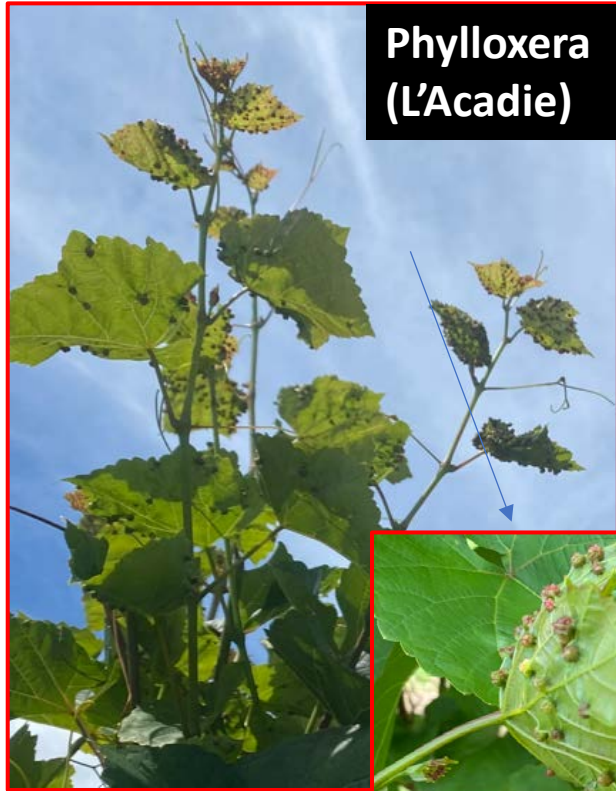
| | Tatamagouche (North Shore) | | Kentville (Mid Valley) | | Liverpool (South Shore) | |
|---------------|-------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|
| | Number of days with ppt (mm) | Number of days with ppt \geq 25 mm | Number of days with ppt (mm) | Number of days with ppt \geq 25 mm | Number of days with ppt (mm) | Number of days with ppt \geq 25 mm |
| April | 12 | 0 | 10 | 0 | 10 | 0 |
| May | 9 | 0 | 10 | 0 | 6 | 1 |
| June | 16 | 1 | 19 | 2 | 16 | 3 |
| July | 16 | 3 | 24 | 1 | 13 | 2 |
| August | 12 | 4 | 10 | 2 | 13 | 4 |
| September | 11 | 1 | 14 | 2 | 9 | 0 |
| October | 14 | 0 | 12 | 1 | 10 | 2 |
| Total | 90 | 9 | 99 | 8 | 77 | 12 |

Of particular note in June, July and August at Kentville there were 53 out of 92 with measurable precipitation!

Challenges – Pest Control



Challenges – Pest Control



**Phylloxera
(L'Acadie)**



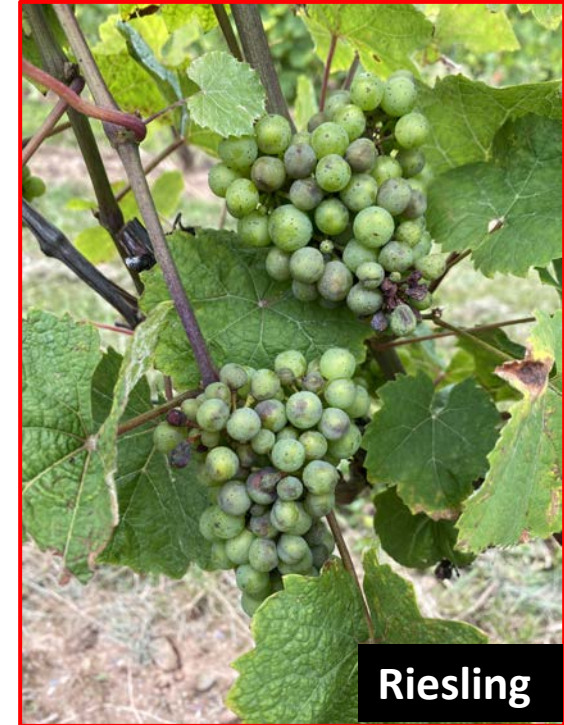
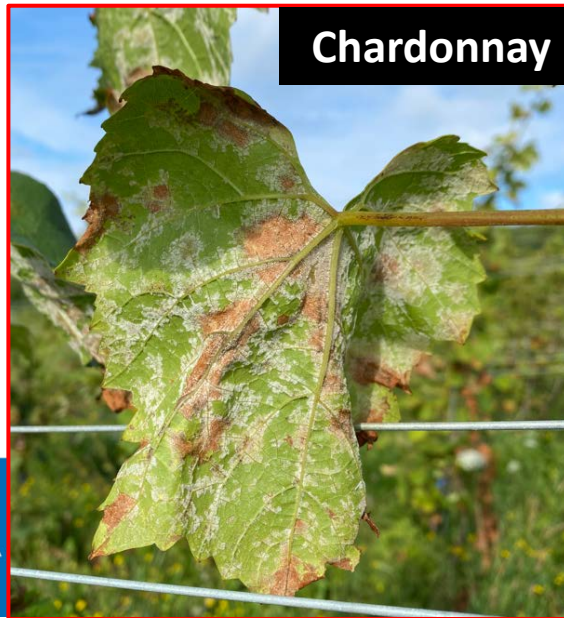
**Erineum Mites
(Geisenheim 318)**



Challenges – Pest Control

Downy Mildew

RAIN!!!



Challenges – Pest Control



Black Rot



Challenges – Strange things

New growth late in season



Aerial roots

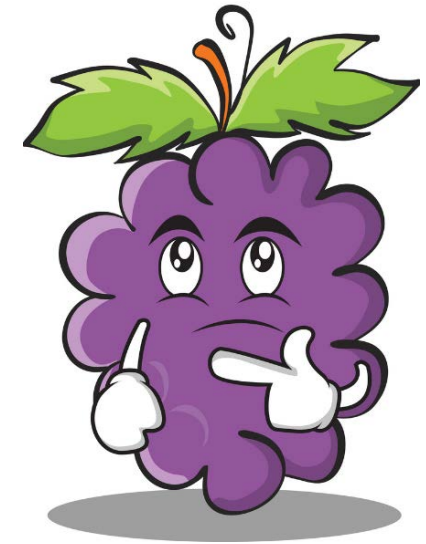


Salt damage

Extreme Challenges



Current Concerns



1. Total # of Vine collapse in 2023 and spring 2024
2. Total # of Vine death in 2023 and winter 2023/ 2024
3. Potential for overcropping in 2024
4. Weed and disease control issues in 2023 – weather impeded ability to apply protective fungicides
5. Sourcing vines for replant in 2024 (*limited number of virus certified – especially hybrids*)
6. Changes in vine cultivars being replanted – risk management for future

Considerations

1. Risk – Cultivar choices – Winery needs versus wants
2. Self propagation (own root hybrids) – Virus testing in NS
3. Realistically re-evaluate site potential
4. Vine density/spacing
5. Site preparation and corrections if needed to reduce risk
6. Labour, Skill sets and Equipment to do what is needed in time
7. Economics of production – reestablishment and over life of the vineyard
8. Advisory programs
9. And