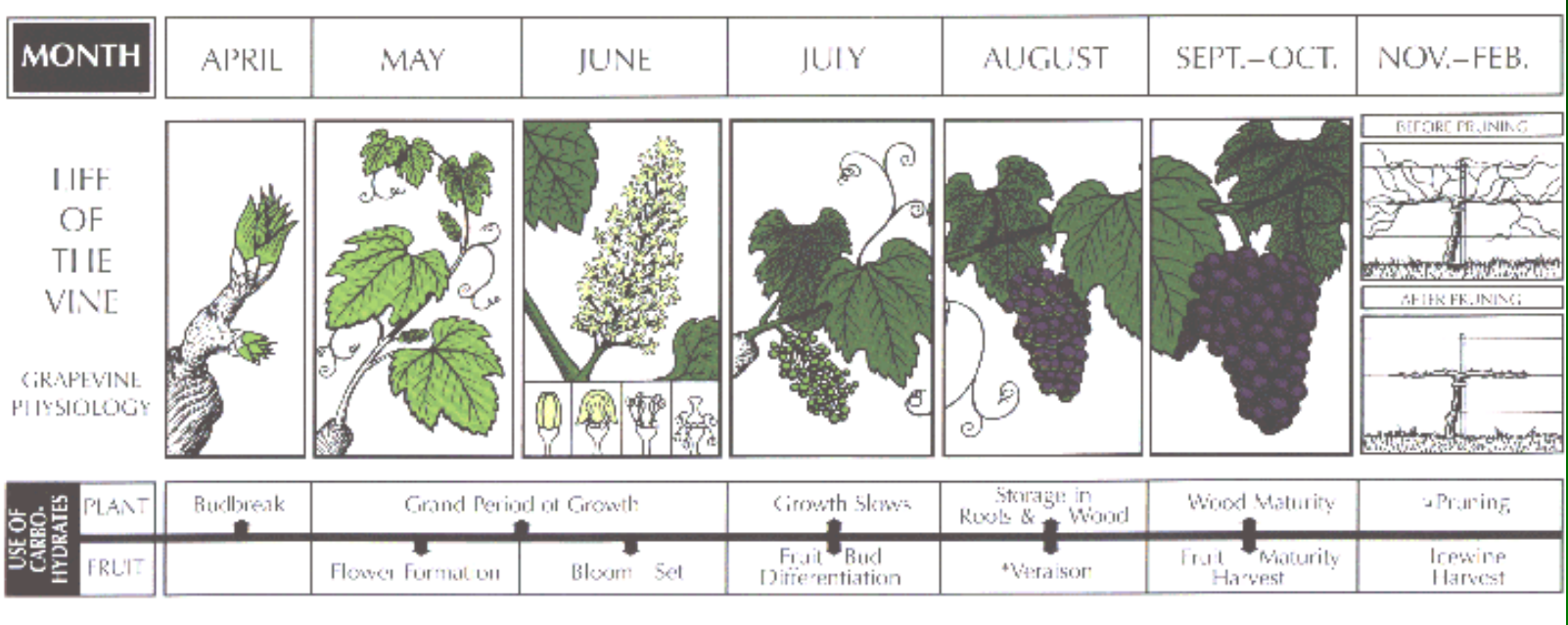
Vintage 2004:
Umpqua Valley Reference Vineyard Report



SOUTHERN OREGON UNIVERSITY

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UMPQUA VALLEY WINERIES

Umpqua Valley Chapter – OWA
Terry Brandborg, Chapter President

Outline of Talk

- Project Overview/Timeline
- Weather/Climate Overview
- Phenology Overview
- Composition Overview
- Summary, Forecast, and Future

Project Overview

- Establish and monitor climate, phenology, and composition at 9 reference vineyards distributed throughout the Umpqua Valley

- Reference vineyards chosen by:
  Site characteristics, location, and willingness to participate

- Main goal is to establish identical plantings of varieties/clones at each site:
  Syrah (01), Tempranillo (01,02), Grenache (04), Malbec (04), Viognier (01) … to add this year Pinot Noir (Pommard), Pinot Gris (01), and Riesling (Wente)

- Interim varieties for initial observations selected – Merlot, Tempranillo, Syrah, Pinot Noir, Pinot Gris

- Temperature data (standardized temperature devices)
  Phenological data – bud break, bloom, véraison, and harvest
  Varietal sample and harvest data – °Brix, pH, TA, berry weights, yields

- Provide grower education and vintage overviews of spatial variation in climate, phenology, and composition

Project Timeline

January – Applied for OWB funding

February – Defended Proposal, wood set aside

March – Initial planting of varieties/clones

April – Initial planting of varieties/clones

May –

June –

July – Award granted, temperature sensors installed (7/29)

August – Phenology observing reminders

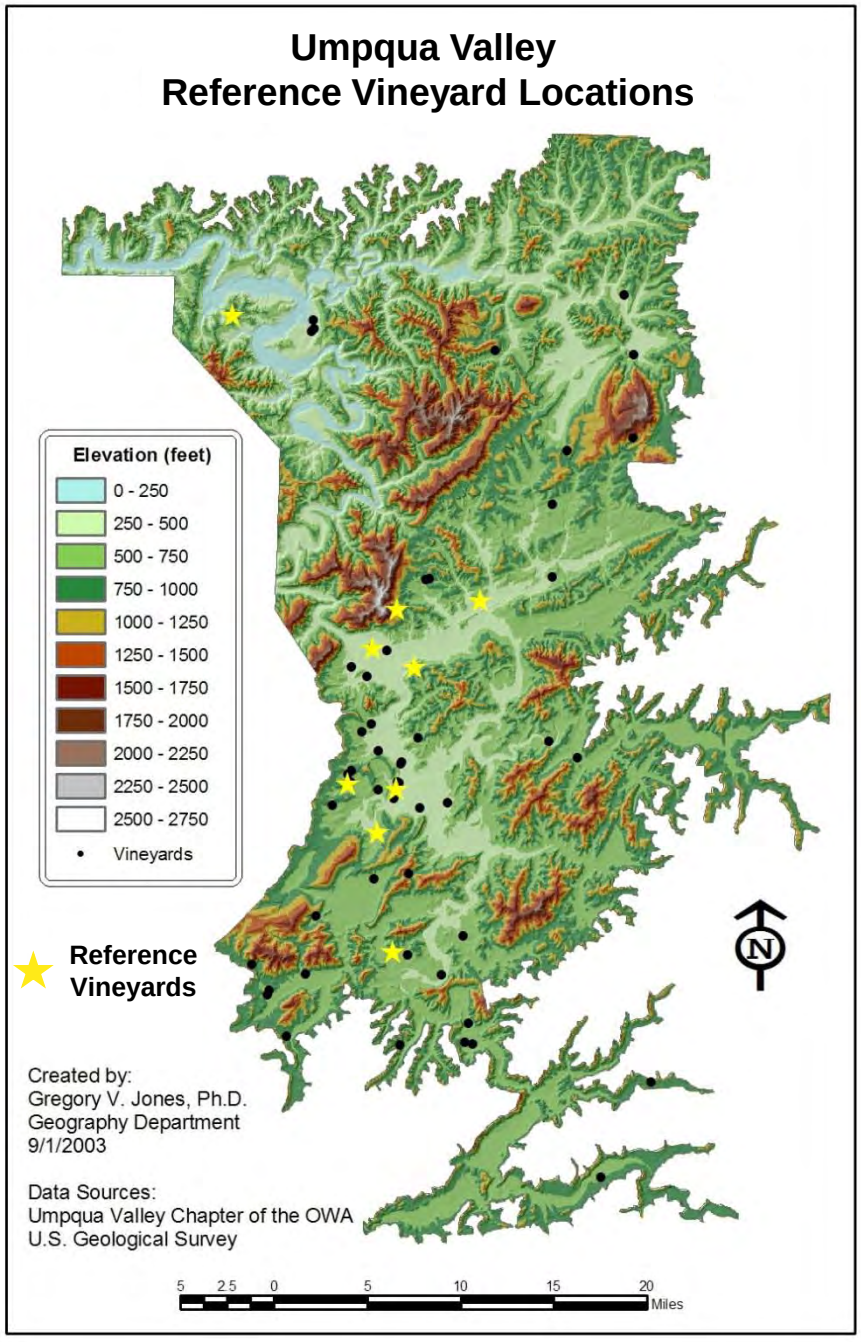
September – Varietal samples collected (9/13), report sent out

October – Phenology and composition observing reminders

November – Downloaded temperature sensor data

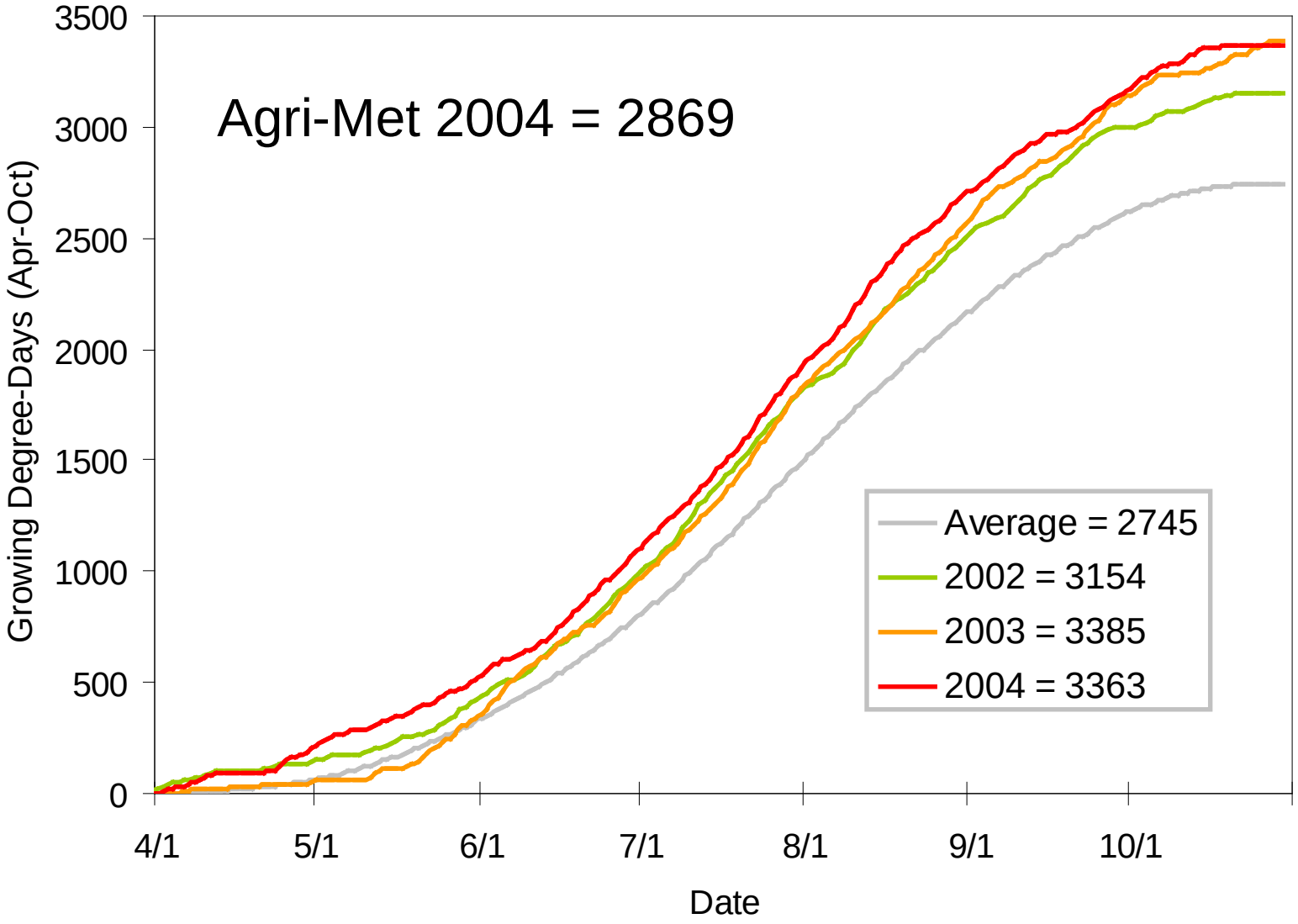
December – Analyze data

January – Chapter presentation, finalize reports (OWB, Chapter), Apply for 2005 funding (?)

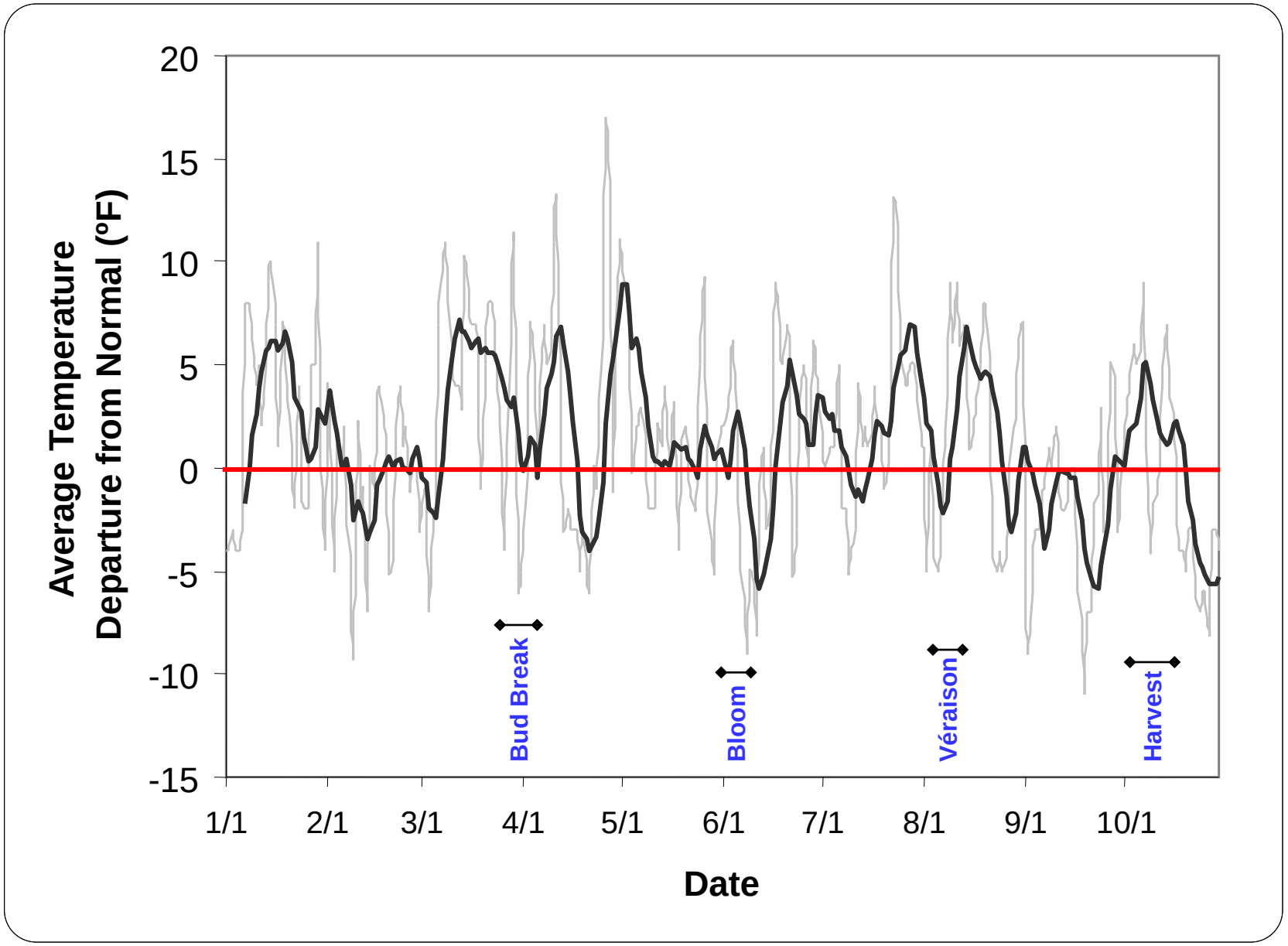


Elevation Characteristics
Mean = 642 ft
Minimum = 335 ft
Maximum = 1154 ft

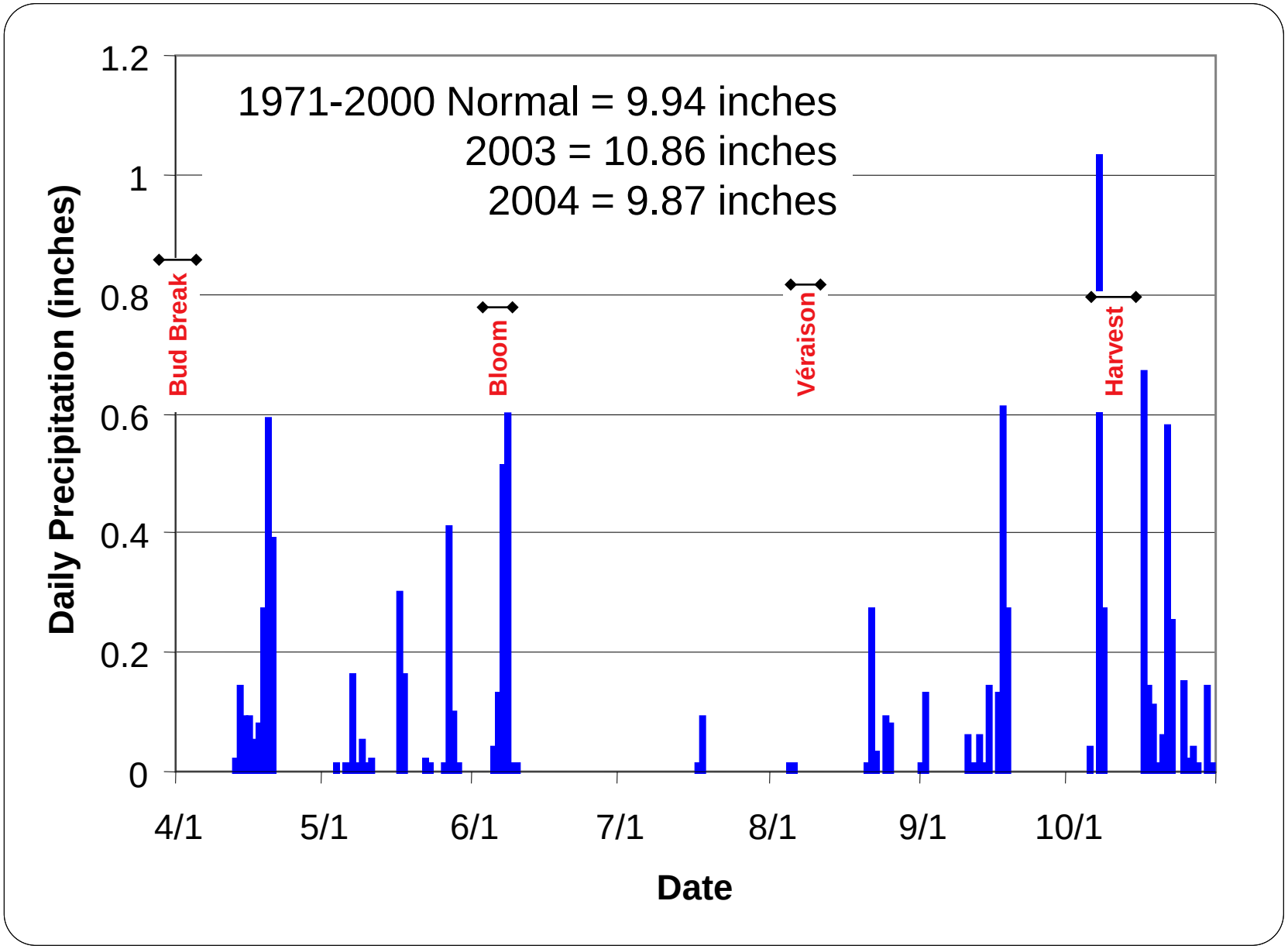
Roseburg 2004 – Growing Degree-Days (Apr-Oct)



Roseburg 2004 – Temperature Departures from Normal



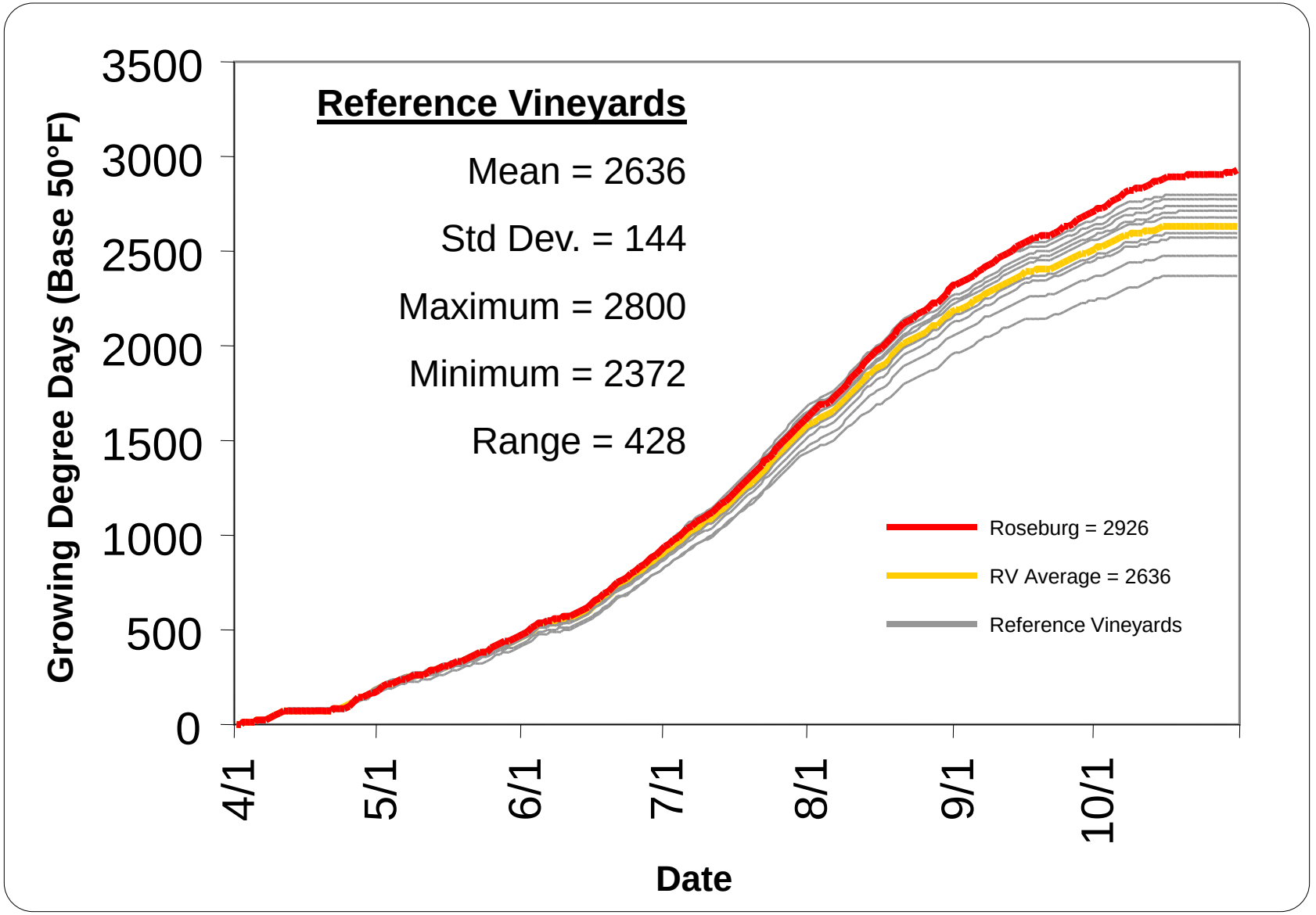
Roseburg 2004 – Growing Season Precipitation (Apr-Oct)



Site Temperature Data Collection and Analysis Methods

- HOBO® H8 Pro-Temperature loggers were installed on July 30th and set at 15 minute intervals
- Data collected on November 1st, 2004
- Data from April 1st to install date was “statistically rebuilt” from the Roseburg station data
- Values aggregated to hourly and daily average, maximum, and minimum temperatures then analyzed for growing degree-days and extremes
- Summarized by site and region

Reference Vineyards 2004 – Growing Degree-Days (Apr-Oct)



2004 Growing Season Temperature Characteristics and Extremes

Variable	Mean	Std. Dev.	Max	Min	Range
Average Temperature	62.0°F	0.7°F	62.7°F	60.8°F	1.9°F
Maximum Temperature	76.8°F	1.7°F	78.6°F	73.6°F	5.0°F
Minimum Temperature	48.2°F	0.8°F	49.5°F	47.4°F	2.1°F

Extremes

Maximum = 113.3°F
# of days > 95°F = 17 (Max = 27, Min = 5)

Minimum = 32.3°F
# of days < 32° NONE

Last Spring Frost – February 13th (Roseburg)
First Fall Frost – November 5th (Roseburg)

Phenology Overview

- Growers submitted the majority of the four main stages for all 20 interim variety/site combinations
- 10 individual events not submitted due to non-harvest of fruit, no observations or other issues (85% received)
- Examined average dates and intervals between dates for:

  The entire region and by variety

- Preliminary!

2004 Average Grapevine Growth Event Dates

Vegetative Development | Berry Development | Dormant Stage

Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan

Bloom

Maturation/ Harvest

Bud Break

Véraison

Median = Apr 1
Stdev. = 7 days
Min = Mar 15
Max = Apr 12

Median = June 5
Stdev. = 5 days
Min = June 1
Max = June 20

Median = Aug 13
Stdev. = 7 days
Min = Aug 1
Max = Aug 27

Median = Oct 5
Stdev. = 9 days
Min = Sep 22
Max = Oct 20

2004 Average Intervals between Growth Stages

Bud Break to Bloom

Median = 65 days
Stdev. = 7 days
Min = 53 days
Max = 86 days

Bloom to Véraison

Median = 68 days
Stdev. = 6 days
Min = 59 days
Max = 79 days

Véraison to Harvest

Median = 55 days
Stdev. = 11 days
Min = 34 days
Max = 69 days

Bud Break to Harvest

Median = 185 days
Stdev. = 13 days
Min = 163 days
Max = 208 days

2004 Average Varietal Phenology




Merlot	Apr 2nd (2)	June 7th (4)	Aug 15th (8)	Oct 14th (10)
Pinot Noir	Mar 30th (7)	June 4th (8)	Aug 11th (11)	Sep 28th (12)
Tempranillo	Mar 31st (11)	June 5th (2)	Aug 15th (3)	Oct 1st (5)
Syrah	Apr 5th (7)	June 10th (4)	Aug 15th (6)	Oct 11th (6)
Pinot Gris	Apr 1st (7)	June 4th (1)	Aug 8th (6)	Sep 29th (3)
Average	Apr 1st (7)	June 5th (5)	Aug 13th (7)	Oct 5th (9)

Composition Overview

- 19 Samples Collected on Sept 13
- Representing a “snapshot of ripening”
- Analyzed at Foothills Winery (with the help of Will Brown and Rachael Martin)
- Harvest composition submitted by growers or wineries 16/19 (84%), remainder either not harvested or not submitted
- Preliminary!

Sample Lab Work at Foothills Winery

2004 Sample Varietal Composition (Sept. 13)

	°Brix	TA (g/L)	pH	Weight (g per 100 berries)
Merlot	19.0 (2.0)	7.4 (2.6)	2.91 (0.09)	122.8 (16.4)
Pinot Noir	20.3 (2.2)	7.6 (2.3)	3.05 (0.13)	136.2 (22.3)
Tempranillo	21.8 (0.7)	5.2 (0.4)	3.36 (0.09)	170.7 (28.6)
Syrah	18.9 (1.8)	8.6 (1.8)	2.89 (0.11)	146.9 (30.7)
Pinot Gris	21.1 (1.3)	7.0 (1.5)	3.03 (0.07)	134.5 (18.1)
2004 Average	20.1 (1.2)	7.1 (1.3)	3.06 (0.19)	144.0 (17.6)

2004 Harvest Varietal Composition

	°Brix	TA (g/L)	pH	Yield (tons/acre)
Merlot	24.3 (1.1)	6.2 (1.8)	3.52 (0.17)	1.1 (0.3)
Pinot Noir	24.2 (0.5)	6.6 (1.1)	3.40 (0.11)	1.2 (0.4)
Tempranillo	23.7 (0.3)	5.4 (0.6)	3.65 (0.10)	1.9 (0.9)
Syrah	24.1 (0.6)	6.5 (1.4)	3.60 (0.10)	1.1 (0.5)
Pinot Gris	24.3 (0.5)	7.5 (0.6)	3.34 (0.05)	3.1 (0.2)
2004 Average	24.1 (0.2)	6.6 (0.8)	3.50 (0.13)	1.7 (0.9)

Vintage 2004 Summary

Weather

- Temperatures anything but normal, warm March followed by cool periods
- Rainfall fairly normal with some rain during bloom and harvest
- Moderate dormant period (16.2°F), heat accumulation starting in March
- Lower growing season heat accumulation, lower extremes (Tmax ↓, fewer days > 95°F, Tmin ↑, less frost and earlier last spring frost

Phenology

- All events earlier by 6-16 days
- Extended bud break to bloom, bud break to harvest periods (12-14 days)
- Similar heat accumulation – phenological development needs

Composition

- Mid-Sept sampling - °Brix ↑, TA ↓, pH ↑, Berry Weights ↑
- Harvest composition - °Brix —, TA ↓, pH ↑, Yields ↓

Winter/Spring 2004-05 Forecast

For Oregon in general:

- Generally below-average temperatures during the first half of the season (Oct-Dec), with normal or somewhat above-average precipitation statewide.
- The second half of the year (Jan-Mar) should see above-average temperatures statewide and average or above-average precipitation.

For the Southwestern Valleys of Oregon:

Temperatures

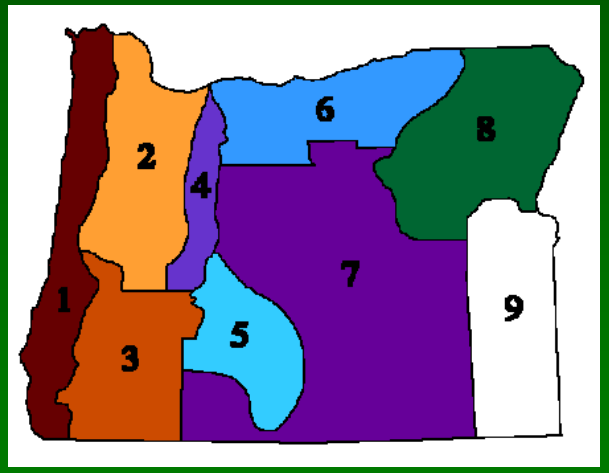
October-December - Slightly below normal (-1.2°F)

January-March - Above normal

Precipitation

October-December - Slightly below normal (-2.96”)

January-March - Slightly above normal



NOAA-CIRES Climate Diagnostics Center (www.cdc.noaa.gov)

Oregon Climate Service (www.ocs.orst.edu)

Future

- Plan to continue project, however ongoing funding issues need to be addressed (OWB, Umpqua Chapter, others)
- Replacement plants needed for non-survival and new varieties
- More effort needed to refine methods and define new areas of analysis

Acknowledgements

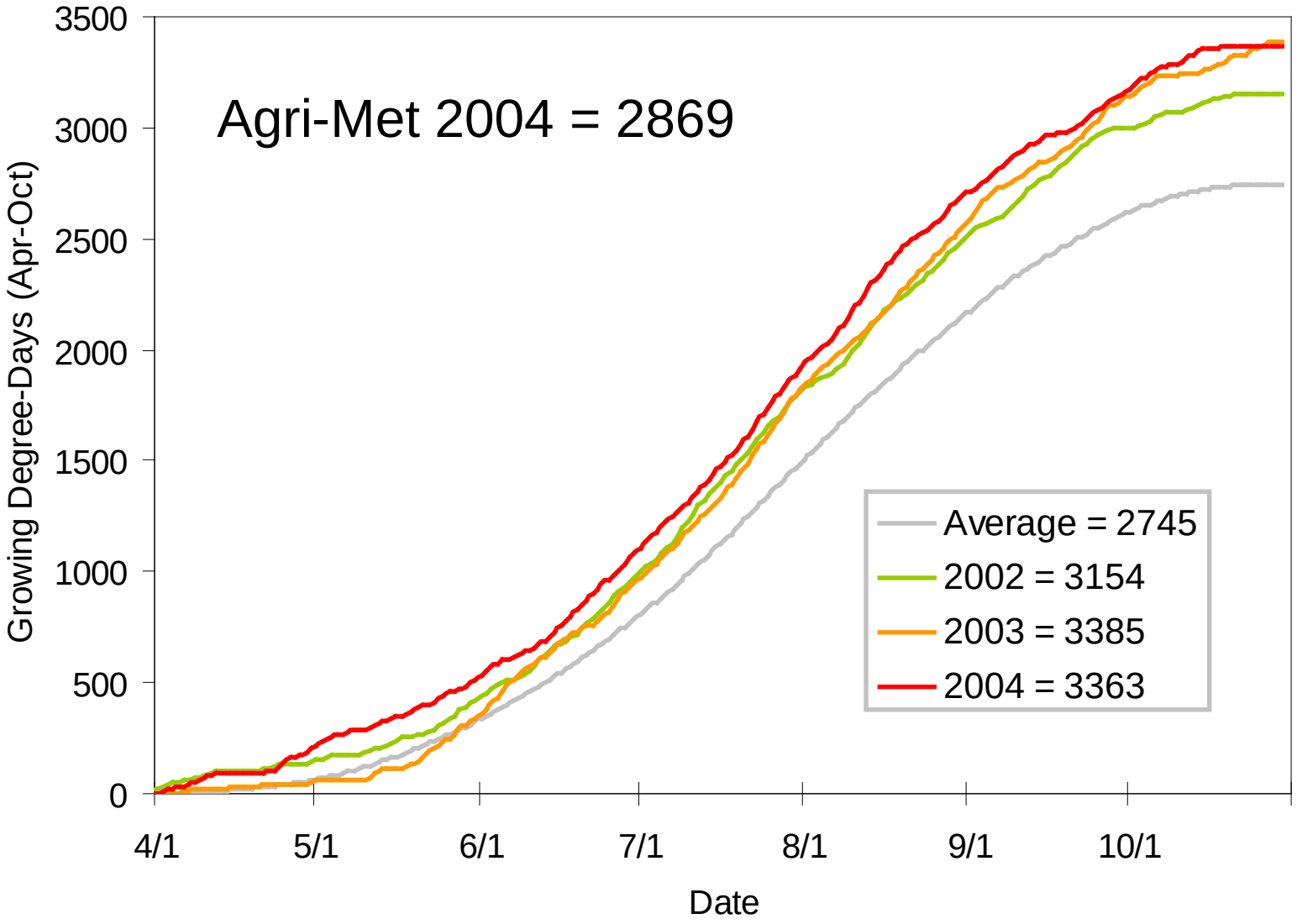
Oregon Wine

- The Oregon Wine Board

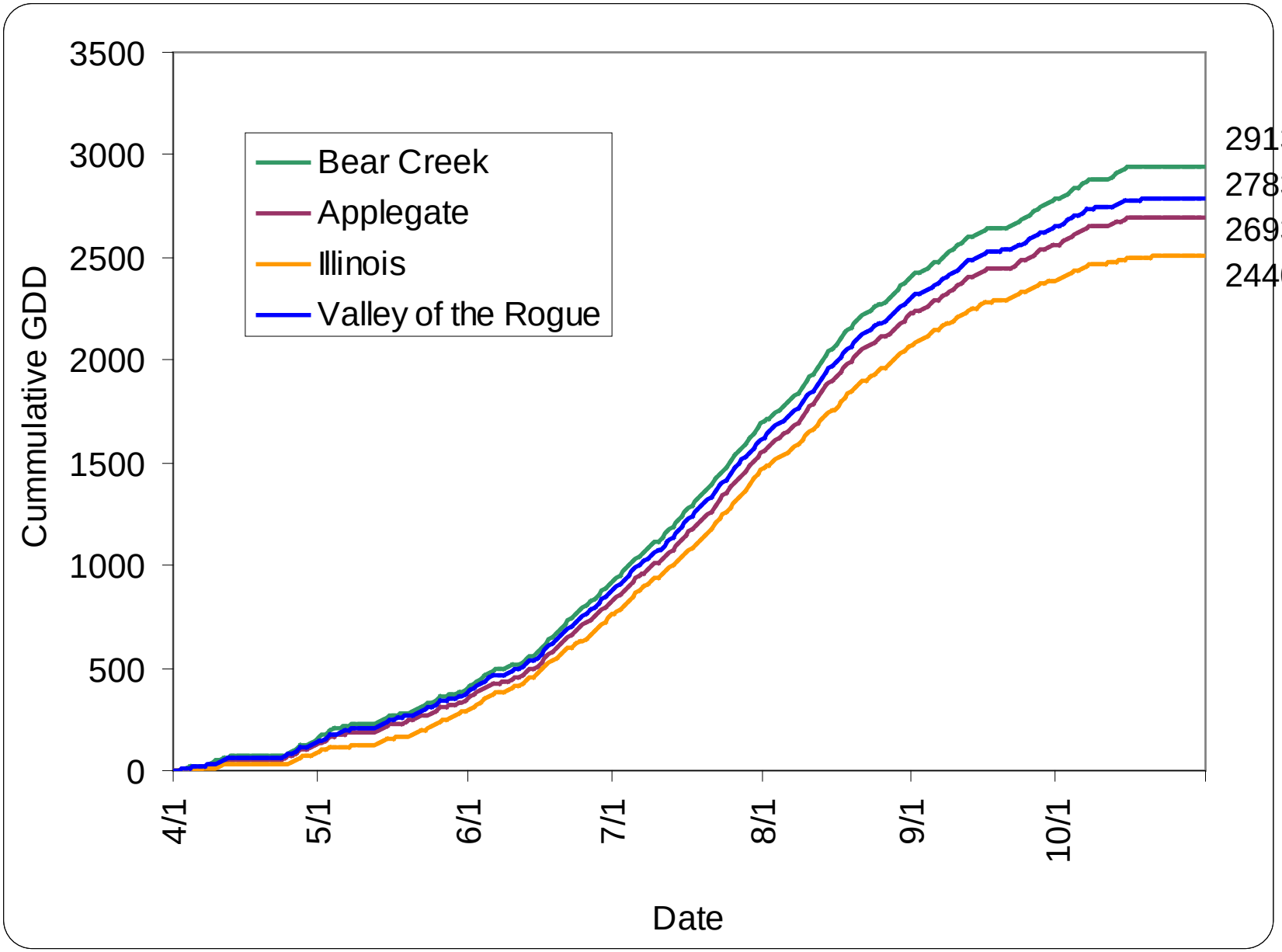
UMPQUA VALLEY WINERIES

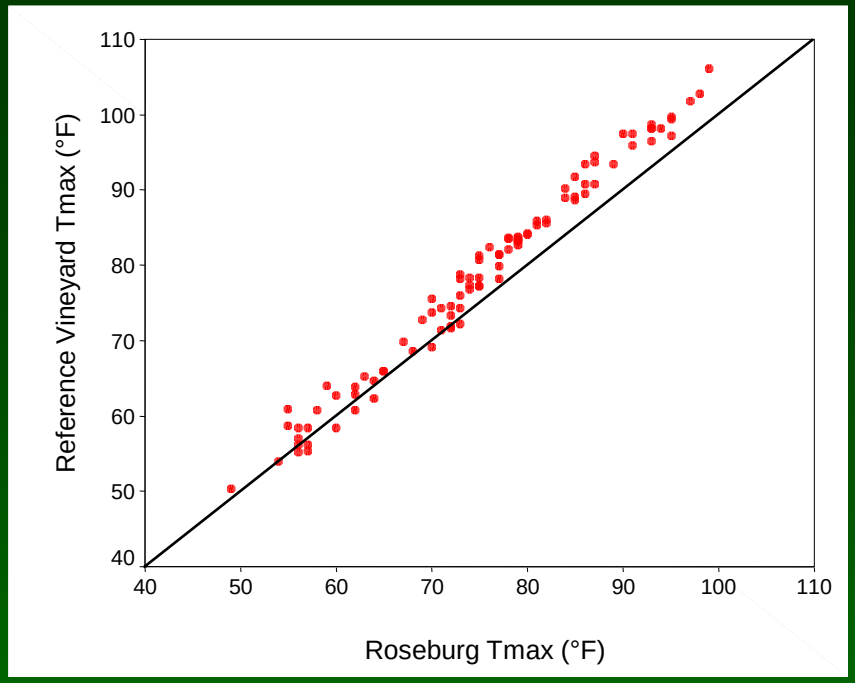
- The Umpqua Chapter of the Oregon Winegrowers' Association
- All of the Participating Vineyards
- Foothills Winery: Jack Day, Will Brown, and Rachael Martin

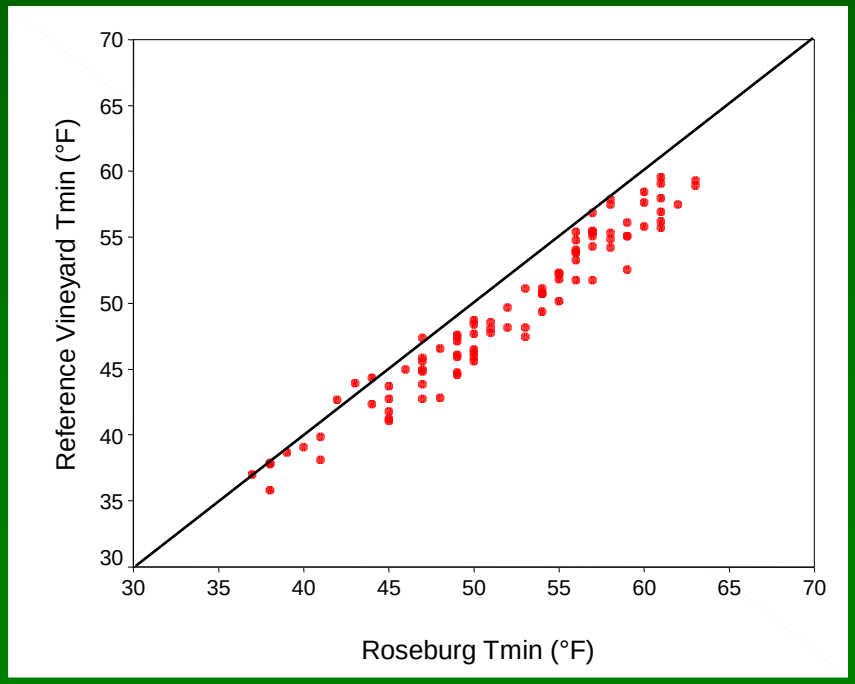
Medford 2004 – Growing Degree-Days (Apr-Oct)



Reference Vineyards 2004 – Growing Degree-Days (Apr-Oct)




Reference Vineyard Tmax (°F)
Roseburg Tmax (°F)
110
100
90
80
70
60
50
40
40
50
60
70
80
90
100
110


Reference Vineyard Tmin (°F)
Roseburg Tmin (°F)
70
65
60
55
50
45
40
35
30
30
35
40
45
50
55
60
65
70