*Date of study*

Started in spring 2020, ongoing

*Date of Public Archiving:*

Fall 2023 likely (but need to check with growers)

*Last modified*:

30 November 2023 (20 June 2022 before)

*Goal*

Build phenological models from budbreak (and thus dormancy) to sugar maturity for winegrapes in British Columbia’s Okanagan Valley using data collected by our lab. Last year of data collection was 2022, with a technician who was spotty on collecting data (especially at the end): what we have was all organised, plotted and maintained that year by Hoai Huong in the git repo.

*Contributors*

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Helped with data input, cleaning and brix measurements: Phoebe Autio, Tolu Amuwo, Sophia Collins, Hoai Huong

*General Files*

| **File** | **Where** | **What** |
| --- | --- | --- |
| setup.monitoringProtocol.tex | GitHub: [fieldwork](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork)  Photos for document in GitHub: [fieldwork/protPhotos](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork/protPhotos) | Protocol for site setup and monitoring for phenology data and brix collection, and brix measurements in Okanagan vineyards |
| publishable.setup.monitoringProtocol.tex/pdf | GitHub: [fieldwork](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork) | Shorter version of the protocol for site setup and monitoring for phenology data and brix collection, and brix measurements in Okanagan vineyards that doesn't include sensitive info. Suitable for publishing. |
| plantsInfo\_2020.csv | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Final plantsInfo.csv for fieldwork 2020. Copy for analyses.  Data on each plant ID in our phenology and brix study across Arterra, Quails’ Gate and Seb Farms vineyards. Includes plant IDs, row IDs, vineyard and block locations and details on the variety and rootstock. |
| plantsInfo.csv | GitHub: [fieldwork](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork) | Data on each plant ID in our phenology and brix study across Arterra, Quails’ Gate and Seb Farms vineyards. Includes plant IDs, row IDs, vineyard and block locations and details on the variety and rootstock for each tagged plant. |
| datasheet\_bcvin.csv | GitHub: [fieldwork](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork) | Template of datasheet for phenology data collection for 2021 onwards |
| sample\_bcvin | Google Drive [BCvin\_fieldwork/AllSitesData](https://drive.google.com/drive/folders/1eBT3qcS6r6LOCrda0hKG_vTmleDSeMJW) | The template datasheet for phenology data collection that April used in summer 2020. We will use the datasheet\_bcvin.csv for all future years because the long format for data entry is preferable - see protocol. |
| brix\_template | Google Drive [BCvin\_fieldwork/brix](https://drive.google.com/drive/folders/1arEzRXorOexULcdW5q3YtO-hWQ35ZJD_) | Template datasheet for brix data entry |
| brixlabelinfo.R | GitHub: [fieldwork/brixlabels](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork/brixlabels) | Script for creating label list for brix bags |
| brixlabels.tex | GitHub: [fieldwork/brixlabels](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork/brixlabels) | Document to create labels for brix bags |

### **Data (Raw)**

**Github** <https://github.com/lizzieinvancouver/bcvin>

**Google Drive** [vitis/BCvin\_fieldwork](https://drive.google.com/drive/folders/16PsE8wxYLqajNHx1Nb0UwuXvxx4sr5Rm)

| brix\_working\_all.csv | Github: [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix)  Original Spreadsheets with dates also in this folder and on [Google Drive](https://drive.google.com/drive/folders/1arEzRXorOexULcdW5q3YtO-hWQ35ZJD_) | Brix data collected in 2020 for Artera and Quails’ Gate sites by AM. |
| --- | --- | --- |
| \_READMEbrix.txt | Github: [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix) | Notes on some basic cleaning that had to be done to correct mistakes in the spreadsheets |
| brix\_working\_all.csv | Github: [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Brix data copied from [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix) |
| brixPlotsforGrowers.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | R script for making nice plots of brix data to send growers in 2020 as we received the data |
| May2020MiraAndFaith folder | Google Drive [BCvin\_fieldwork/May2020MiraAndFaith](https://drive.google.com/drive/folders/1LGxijfdK7arc-PVNDDDSGASfqxXQCclm) | PDFs of scanned datasheets from May 2020 phenology data collection in the Okanagan by FJ & MG |
| brix\_working\_Aug25.xlsx | Google Drive  [BCvin\_fieldwork/brix](https://drive.google.com/drive/folders/1arEzRXorOexULcdW5q3YtO-hWQ35ZJD_)  GitHub: [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix) | Brix data from first round of grape collection in 2020 |
| brix\_working\_Sep11.xlsx | Google Drive  [BCvin\_fieldwork/brix](https://drive.google.com/drive/folders/1arEzRXorOexULcdW5q3YtO-hWQ35ZJD_)  GitHub: [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix) | Brix data from second round of grape collection in 2020 |
| brix\_working\_Sep24.xlsx | Google Drive  [BCvin\_fieldwork/brix](https://drive.google.com/drive/folders/1arEzRXorOexULcdW5q3YtO-hWQ35ZJD_)  GitHub: [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix) | Brix data from third round of grape collection in 2020 |
| brix\_working\_Oct14.xlsx | Google Drive  [BCvin\_fieldwork/brix](https://drive.google.com/drive/folders/1arEzRXorOexULcdW5q3YtO-hWQ35ZJD_)  GitHub: [data/lab/brix](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/brix) | Brix data from forth and final round of grape collection in 2020 |
| Arterra phenology datasheets | Google Drive: [BCvin\_fieldwork/Arterra/Data\_sheets](https://drive.google.com/drive/folders/1BzHf29oz40KxBMRlOWcLyJe18ut13e78) | PDFs of scanned Arterra phenology datasheets from April and Tamara in summer 2020 before the tablet arrived |
| Arterra phenology photos | Google Drive: [BCvin\_fieldwork/Arterra/Photos](https://drive.google.com/drive/folders/1LVeQasehqfuaAFcyAwd2utgVmBqdPw3-) | Photos from Arterra vineyards of percent budburst and veraison from fieldwork |
| April\_QGE\_Mannhardt\_Bloom\_06-22-23-20.pdf | Google Drive: [BCvin\_fieldwork/QuailsGate/data\_sheets](https://drive.google.com/drive/folders/1YD3_ds4WOoKtAYIPfeF0xU6VZd-HALtb) | PDF of scanned Quails’ Gate phenology datasheet from April in summer 2020 before the tablet arrived |
| Quails’ Gate phenology photos | Google Drive: [BCvin\_fieldwork/QuailsGate/Photos](https://drive.google.com/drive/folders/15hJ-dkgeef90b6lA2TxRdoBLBxT9JzC8) | Photos from Quails’ Gate vineyards of percent budburst and veraison from fieldwork |
| april\_feilddata\_datasheet\_bcvin June 27-July 10th.xlsx | Google Drive: [BCvin\_fieldwork/AllSitesData](https://drive.google.com/drive/folders/1eBT3qcS6r6LOCrda0hKG_vTmleDSeMJW)  GitHub: [data/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/phenology) | Phenology data collected by AM in summer 2020. A combined Arterra and Quails’ Gate datasheet |
| CURRENT april\_feilddata\_datasheet\_bcvin.xlsx | Google Drive: [BCvin\_fieldwork/AllSitesData](https://drive.google.com/drive/folders/1eBT3qcS6r6LOCrda0hKG_vTmleDSeMJW)  GitHub: [data/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/master/data/lab/phenology) | Phenology data collected by AM in summer 2020. A combined Arterra and Quails’ Gate datasheet |
| plantsInfo\_2020.csv | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Final plantsInfo.csv for fieldwork 2020. Copy for analyses.  Data on each plant ID in our phenology and brix study across Arterra, Quails’ Gate and Seb Farms vineyards. Includes plant IDs, row IDs, vineyard and block locations and details on the variety and rootstock for each tagged plant. |
| plantsInfo\_2021.csv | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Final plantsInfo.csv for fieldwork 2021. Copy for analyses.  Data on each plant ID in our phenology and brix study across Arterra, Quails’ Gate and Seb Farms vineyards. Includes plant IDs, row IDs, vineyard and block locations and details on the variety and rootstock for each tagged plant. |
| DaymetData.csv | Github: [/analyses/output](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/output) | Climate data for each arterra location, extracted from Daymet by Dinara in 2022 |
| 2022PhenologyData folder | Github: [data](https://github.com/lizzieinvancouver/bcvin/tree/master/data/2022PhenologyData)  Google Drive: [BCvin\_fieldwork/AllSitesData](https://drive.google.com/drive/folders/1eBT3qcS6r6LOCrda0hKG_vTmleDSeMJW) | Phenology data collected by Kristian Blackburn |

### **Data (clean)**

| brix\_2020.csv | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Cleaned 2020 brix data |
| --- | --- | --- |
| brix\_2021.csv | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Cleaned 2021 brix data |
| Phenology2022 | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Cleaned 2022 phenology data |
| Phenology2020-2021.csv | Github:  [analyses/input/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/input/lab) | Cleaned 2020 and 20201 phenology data from lab field work. Cleaned by Hoai Huong |

### *Fieldwork*

| directionsContactinfoetc folder | Github: [fieldwork/directionsContactinfoetc](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork) | Contact info for people involved in the Okanagan fieldwork |
| --- | --- | --- |
| fieldLogs folder | GitHub: [fieldwork](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork) | Logs from 2020-2022 field work trips by lab members. |
| mapping folder | GitHub: [fieldwork/mapping](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork/mapping)  Map also saved on an external hard drive | Maps of the vineyards we work in and the spreadsheets needed to create them in GIS.  Spatialite file rather than just a shape file because spatialite files can hold more than one file and are less likely to break when you move them around. This file is a compilation of the digitized vineyard maps. |
| WolkovichLab\_OkanaganSafety.tex | GitHub: [fieldwork/safetyplan](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork/safetyplan)  Photos required for the document are also in this folder | The fieldwork safety plan for phenology and brix data collection in Okanagan |
| siteinfo folder | GitHub: [fieldwork/siteinfo](https://github.com/lizzieinvancouver/bcvin/tree/master/fieldwork/siteinfo) | Driving directions to the vineyards and some information about sites from Pat Bowen |

**Cleaning**

| brixPlotsforGrowers.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | R script for making nice plots of brix data to send growers in 2020 as we received the data |
| --- | --- | --- |
| bcvin2022\_gatherandplot.R | Github: [analyses/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/c6767b288c78746b73b8713f14ded19952de9039/analyses/cleaning/lab/phenology) | R script made by Hoai Huong to clean 2022 phenology data from csvs of each tab of the original xlsx files |
| bcvin2020\_estimates.R | Github: [analyses/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/c6767b288c78746b73b8713f14ded19952de9039/analyses/cleaning/lab/phenology) | R script by sophia cleaning lab phenology data and saving 50% estimate dates for 2020 |
| bcvin2021\_estimates.R | Github: [analyses/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/c6767b288c78746b73b8713f14ded19952de9039/analyses/cleaning/lab/phenology) | R script by sophia cleaning lab phenology data and saving 50% estimate dates for 2021 |
| bcvin\_rawclean.R | Github: [analyses/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/c6767b288c78746b73b8713f14ded19952de9039/analyses/cleaning/lab/phenology) | R script by Hoai Huong to clean 2020 and 2021 phenology data and save a clean csv file |

**Analysis**

| brixPlotsVarieties.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Making plots for us to explore how the brix data looks - not to show the growers |
| --- | --- | --- |
| bcphen\_raw.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code by Hoai Huong plotting raw lab phenology data |
| brixPlotsforGrowers.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code to make brix plots to send to growers during the 2020 brix collection season. |
| brixPlotsforGrowers\_2021.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code to make brix plots to send to growers during the 2021 brix collection season. |
| brixPlotsVarieties\_2020.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code Geoff wrote to explore 2020 brix data during the collection season, especially to compare between varieties. |
| brixPlotsVarieties\_2021.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code Geoff wrote to explore 2021 brix data during the collection season, especially to compare between varieties. |
| labBrixGDD.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code by Hoai Huong plotting brix data and changing brix data against GDD or change in GDD |
| labBrixGDD\_DoseResponse.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code by Hoai Huong running a dose response model for each variety and year for brix against GDD |
| labBrixGDD\_Linear.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code by Hoai Huong running a linear model for each variety and year for brix against GDD and change in brix against change in GDD |
| labBrixTrends.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code by Hoai Huong assessing 2020 and 2021 brix change between each measurement values |
| PhenCheckin.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | Code by Lizie written to help plan future phenology data collection |
| phenclean.R | Github: [analyses/lab](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/lab) | ## Started 27 August 2021 ##  ## By Lizzie ##  ## Code taken from phenCheckin.R that starts cleaning the data ##  ## Basically as I overwrote old code to look at most recent data I added that code here ...  ## ... since it starts cleaning the data ##  Makes August12\_2021longfile.csv |
| arterra\_vslab\_phenology | Github: [analyses](https://github.com/lizzieinvancouver/bcvin/tree/master/analyses/arterra_vs_lab_phenology)/arterra\_vs\_lab\_phenology | Created by Hoai Huong to make plots to compare lab and Arterra phenology data |
| bcvin2020\_estimates.R | Github: [analyses/lab/phenology](https://github.com/lizzieinvancouver/bcvin/tree/c6767b288c78746b73b8713f14ded19952de9039/analyses/cleaning/lab/phenology) |  |

## \Notes

