

bevin Fieldwork Log, May 2020

May 9, 2020

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0.1 4 May 2020

- Met with Pat Bowen and Carl Bogdanoff to discuss sampling and vineyard etiquette.
- We should be allowed to leave up tape throughout the season and mark buds with metal tags but should ask first, of course
- May be allowed to tag vines until next year for easy finding - ask managers
- Pat and Carl don't think Arterra or Quail's Gate are doing organics management. Sebastian Farms is all organic now.
- Merlot or Chardonnay would be good varieties to sample more thoroughly because they are commonly grown and popular for the region.
- Slope aspect, east vs west side of lake (getting morning or afternoon sun), row direction - interests for climatic variation
- the vineyard managers we are meeting should be considered more collaborators than facilitators. They might have good ideas.
- to keep vine quality consistent, we should focus on vineyards directly managed by the big wine companies rather than contract growers. This is because contract growers get paid based on the amount of grapes they sell, rather than the quality of the grapes, so there is a tendency to overcrop. Mike may suggest a contract grower though that is growing to the higher standards, and if so we should go with his suggestion. As long as we keep to high quality vine management, the wine company should not make a big difference.

- the most popular grape varieties shifts regularly. At the moment there is a lot of shifting to merlot from white winegrapes in the south. How it is probably 70:30 ratio of red to white there. More centrally in the valley it is more like 50:50. Sav blanc is getting more popular, and pinot gris is also popular at the moment
- vines should be at least 4 years old for us to monitor them

Grower communication

- send growers information in easily digestible and usable formats i.e. simple spreadsheets or maps
- make yourself useful by giving growers information that they want
- Try never to say no to a talk or committee meeting invitation
- Get on the Research and Development Council for BC Wine. Maybe attend conference if there is one.
- when writing grants, deliverables must be useful.

Need to consider: Make sure vines we choose will be there for 3 years

We also briefly discussed winter hardiness modeling.

- Carl has started using a 4th order Quadratic equation, and this seems to be working well
- acclimation and deacclimation are not the same process, but Carl thinks they should have similar rates
- Carl also doesn't think there should be a relationship between maximum hardiness and rate of deacclimation. He pointed out Riesling bursts quite late, whereas Chardonnay bursts early, but they are both fairly hardy

0.2 5 May 2020

- met with Mike Watson at Dark Horse Vineyard, vineyard manager?/head viticulturist? at Arterra to discuss site access and what to consider when choosing vines
- Mike is interested in soil type. Soil type can differ within blocks, although less so for Arterra because Mike tries to avoid this issue. For contract growers, especially new growers, it is more of a problem because they focus on maximizing yield per hectare, so squish in as many vines as possible
- Mike also mentioned something about a contract grower who "pushed the vines too much", who 3rd leaf on one year and second leaf the next, but mostly got away with it, although there were "circles of death" at the site. Mike seemed to think this might be related to the soil. He said some growers can get away with doing everything wrong, while others cant, and maybe this is because of soil. We didn't understand this section of the conversation.
- some site maps might be incorrect, so Mike will send us updated maps
- Fine to sample at Dark Horse, Whitetail, McIntyre, NK'MIP Cellars.
- Dark Horse - We need to let Mike know we will be around. If we keep things non-onerous they can collect some data for us.
- No expected variety/plant changes in the any of vineyards.

- Flagging is fine, and we don't need signs as we don't want the workers to do anything special. We should use flagging tape that is not orange, yellow or pink though. (Faith also saw some blue while out at the vineyards).
- Be aware that Inkameep Winery and NK'MIP Cellars are different. We are working at NK'MIP Cellars.
- Phone numbers (to be contacted the day before entering the vineyard)
- Manjit Deol (Manager at McIntyre and Whitetail) - 250 488 8215
- Scott Carlson (Vineyard supervisor at McIntyre and WHitetail) - 250 485 7920. Call preferentially to Manjit because on site more
- NK'MIP - Nelson Dutra (not sure of surname spelling) - 250 485 8085
- there are also boards up at each vineyard with the spraying schedule. If in doubt, call Mike.
- Call the day before to let vineyard know we will be sampling.
- NK'MIP is usually locked, but we have a key. We should return the key at the end of the season.
- we should access the vineyards between 6am and 3/4 pm. That is when the workers are there.
- weekends should be ok. The workers work Saturdays but not Sundays though, so maybe we should avoid Sundays?
- Nothing is alarmed
- Mike talked very enthusiastically about a GIS dashboard they are working on that will have spraying schedules and stuff. Faith wonders if we could make our information (when we have it) a GIS dashboard, or a layer for their dashboard?
- when we asked Mike what phenological stages he looks for, he mentioned "when the inflorescence separates". He uses this to gauge what pesticides to use (whether to combine sulfur and pertritas or not). He's not sure how accurate this stage is, and we are not totally sure which Eichhorn - Lorenz stage it is, but we should try and capture it. It's a bit later than we would have thought to measure.

Other notes from our Adventures:

- why do Arterra cane prune rather than cordon prune some of the vines? Also we should consider how our flagging will work with these pruning types. Probably we need to use loose flagging so we don't restrict cane growth
- Why do they spray irrigate in Whitetail? Also avoid rows where there are irrigation issues.
- Mike has friends who rent Apex condos during summer if we can't find housing
- Shiraz is Syrah! New revelation for Mira!
- NK'MIP Cellars and McIntyre have Shiraz/Syrah
- All 4 Arterra vineyards have Cabernet Sauvignon - consider adding to variety list

Dark Horse Vineyard Walk notes

- We should have 6 vines next to each other as a unit, and always skip to the first pole to avoid vines right on the outside edge of the block

- We want probably a ratio of 40:40:20 of upper:lower:middle vines in the row. We also want to be as efficient with our time as possible, so avoid unnecessary crossing vine rows.
- Sample near weather station
- Merlot and Chardonnay are across the road from each other so make sampling plan easy to grab both.
- Sample Merlot from several blocks and Chardonnay from both blocks

NK'MIP Vineyard Walk notes

- Sample both Merlot blocks, both Shiraz blocks, Cab Sau?
- 6 top, 6 bottom, a few in middle

0.3 6 May 2020

Chad meeting at Quail's Gate Wineshop to discuss Quail's Gate Estate Vineyard and Mannhardt Vineyard

- Syrah/shiraz at Quail's Gate is not doing very well.
- In fact, very few of the vines below Boucherie Rd are doing very well. They are likely to be removed. Chad thinks this might be because the soil down there is more clay, whereas the top is more volcanic soil and gravel
- The Sauvignon blanc is ok though, probably there for 5 years.
- Chad was not sure if there were good soil maps (we asked Pat and Carl and they said they have maps of soil)
- Chad said we should sample in the other Quail's Gate vineyard (Mannhardt), where they have Riesling.
- Flagging tape is fine, and we don't need signs. We should label the flagging tape though with UBC and maybe Lizzie's name?
- There are tags on every second row with vine rootstock, variety clone and block info.
- Chad doesn't think different blocks will be very different phenologically.
- There are weather stations on site
- Chad was interested in the connection between numbers of flowers and numbers of fruit produced. Maybe we could capture this using software?
- In passing, Chad mentioned there had been 90 per cent die off of buds. Not sure why, but I think from cold damage?
- we could get pruning dates from Chad. He would be interested to see how pruning dates affect phenology. He talked about a trial where they tried to put back the phenology with late pruning. They did delay budbreak but then veraison was earlier.
- clone vs cordon pruning. Chad prefers cane pruning for high quality grapes because there is less chance of incorrect pruning leaving too many buds. He would be interested if pruning style affects phenology. The Riesling in Mannhardt would be good to try and tackle this question because there is a mix of pruning within the same block. But its possible vines might transition during our study.

- Chad is trying to shift pruning so that a block is entirely cane or entirely cordon pruned. Some blocks are still mixed so pruning of some plants may change during experiment unless we flag them.
- Rootstock 3309 is preferred because middle yield and good scion merging, 101/14 is good for lower vigour, and 504 is good for higher vigour.

Sampling

- Chardonnay 4-1 is going to be changed, so don't sample. 3-4b is better. Don't sample 3-4a because it has a disease. Maybe utopia or something?
- Blocks 5-1 to 5-4 are fine.
- management is fairly consistent in the vineyard. Apparently there are a few differences though. For example some of the Pinot noir clones are better than others so are either managed for quality or quantity, 4-11 and 3-1 are high quality. Other blocks not so high quality. For Chardonnay the top blocks 5-1 to 5-3 are less high quality and lower blocks 5-2 to 5-4. This is due to a spring in the top plus soil differences. Also perhaps a different clone?
- But there are some trials of heat treatment instead of pertiticide. Tanya is doing this and may have phenology data. It would be interesting to see if differences based on this, but the current trials are on vines that will not stay. Chad would like to try on Pinot noir, and if so maybe we could get data from the different trials.

Access

- We should text Chad, or even better Judy the Assistant Manager
- No preferences on timing access or weekend vs weekday visits. 6 am is fine. Workers finish about 3.30pm.
- There is a carpark opposite block 3-4a we can park in (just before the main shop, on the other side, if you are driving north from Penticton)
- walking access is fine. Car access seems fine in Mannhardt but not Quail's Gate main vineyard.

0.3.1 Meeting with Carl, Lizzie and Faith 2.30 pm

- generally we talked about winter hardiness (see CarlMeeting2020 document in hardiness folder)
- Carl also supported what Chad said about popular rootstocks
- we should be careful about s=rattle snakes
- we should get an exiting GIS Dashboard
- Carl was less convinced about the benefits of cane pruning, but talked about the difficulties of getting good pruning staff.

0.3.2 Meeting with Lizzie, Mira, Faith - sampling planning

- 300 plants in a variety rich plot at Davis took 4-6 hours to sample when interns got used to sampling. There was little walking between plants.

- Save 20% time to add Sebastian Farms sampling next year
- Aim to sample 6 plants next to each other, do not go below 4 plants
- Drop plants per block or diversity of locations within block before dropping diversity of blocks and varieties. No less than 16 plants per block.
- Keep multiple blocks of a variety if they have the same rootstock and clone. If there are differences, it's less important to keep multiple blocks.
- If desperate to lower numbers, look for variety overlap between McIntyre and Whitetail.
- If needed, order of dropping varieties = 1. Riesling, 2. Cabernet sauvignon, 3. Syrah. Not dropping: Sauvignon blanc, Pinot noir, Chardonnay, or Merlot.
- Pick same rootstock if possible to minimize rootstock effect (S04?)
- Plan for Dark Horse sampling to take about 1-1.5 hours so we can ask them to continue sampling after we leave.
- Definitely try to do Brix sampling so we can compare with Mike's Brix
- Try to prepare some report for Dark Horse as a thank you for helping us sample.

0.4 7 May 2020

- Flagged in Whitetail: 36 plants in block J Riesling, 36 plants in Chardonnay block OIB, 36 plants in Riesling block B, 24 plants in Chardonnay block C, 36 plants in Sauvignon blanc block D, 36 plants in Cabernet sauvignon block F.
- Flagged in McIntyre: 24 in Cabernet sauvignon block Q, 36 in Pinot noir block O.
- Merlot was not tagged in Whitetail because they were in the process of removing some vines and planting new ones. Will check for update next time we go to Whitetail.
- Flags in Whitetail OIB likely to be removed
- Scott Carlson gave us a key for McIntyre (and maybe Whitetail gates) so we can stay late if needed.
- Initially used old orange flagging tape that we were drawing stripes on until last 12 plants of block D. Then began using new tape from Lizzie.
- If cordon and cane, we chose to flag the cane.
- If both cordons (or canes) looked fairly similar, we selected which cordon (or cane) to use by flipping a coin. Direction of heads and tails decided at beginning of block - consistent when blocks are same orientation.
- GPS points were taken at each stop with the following naming formula: (2 letter vineyard code) - (block)(row#)(location in row). Mira most often chose to use the even numbered row when naming but some may have the odd number. The even number was chosen because Mira likes even numbers.
- An observation is that we saw a herd of horses grazing within the vineyard here. Is this for a land management reason, or an agreement between land owners/horse owners? DO the horses graze there all year? DO they damage or help (fertilize) the vines?
- We noticed in block C, there was quite a bit of within block phenological variation. Northern plants of row 30 were bursting bud or 2 leaves, and at the south end of the same row there were 3/4 leaves out We saw a weather data logger at Whitetail
- McIntyre is on a bench/plateau overlooking the western side of the Okanagan Valley. You

- can just see the tail end of the lake from some places.
- we saw what we think are fans in both McIntyre and Whitetail vineyards
- Mira noted there were totally different weed communities around the two vineyards. Might this suggest different soil types? We also saw what we think is evidence of fertilization, blue green pellets in the soil.
- Lizzie suggested we think about buying a cheap printer, or asking Carl and Pat to print. Worst case Lizzie will post us some.

0.4.1 schedule

- 7.15 left Penticton
- 8.00 Arrived at Whitetail.
- We drove from lower vineyard to upper vineyard by following the road past OIB block. The road slopes up the side of the hill.
- 8.10 Walked up to block J .
- Set up block J sampling.
- 9.15 Left upper fields.
- 9.30 Drove through block middle of OIB.
- We set up 36 vines in block OIB and 36 in block B.
- 11.18 Finished setting up blocks OIB and block B, and started driving to block C.
- 11.30 set up 24 vines in block C Chardonnay.
- We then went to Sav B. We noticed some vines have overhead and drip irrigation, where as others had only overhead
- 12.20 to 1.20 lunch break, and Lizzie visiting.
- 13.23 drive to block B Sav B to finish last 12 vines.
- 13.30 finished last 12 vine set up.
- 14.15 we headed to Merlot block G. Many plants here were too young. Also rows 55 plus were old but had lots of ripped up vines. we didn't end up setting anything up here yet.
- 14.30 We popped over to the big metal shed where we met Scot (we think) and he gave us keys to McIntyre. We need to return the key at the end of the 3 weeks.
- 14.40 we went back to the vineyard and set 36 vines up at block F Cab Sav.
- 15.08 left Whitetail for McIntyre vineyard.
- 15.20 arrived McIntyre.
- 15.30 sat and thought about stuff and took photos.
- 15.33 drove around to block Q and set 12 vines up.
- 15.48 drove around.
- 15.53 started setting more vines in block Q.
- 16.04 finished setting the extra vines.
- 16.07 drove to Pinot noir block O.
- Block O has a mix of cordon and cane training vines.
- 16.28 finished the setting 24 vines in block O.
- 16.33 Stopped at the other end of block O Pinot noir to set up last 12 vines close to the

road.

- 16.41 Finished setting up vines and went home.
- 17.30 Arrived back in Penticton.

0.5 8 May 2020

- there are two road access points for McIntyre. The second (back entrance) is on Arrow Head Rd (off McKinney Rd, after main entrance) between block A and C.
- Met Brian at NK'MIP while he was regulating irrigation. He drives around in a black truck and was nice enough to turn off the sprinklers in the row we were in without us asking.
- Chad sent Mira contact information for Judy (Quail's Gate assistant manager)
- 5.41am left Penticton .
- 6.28am Arrived at McIntyre
- 6.34 saw a deer in the vineyard.
- 6.35 Set up block J Sav B. 12 vines many vines in.
- Phenology vines ranged from green tips to leaves.
- 6.46 drove to a new location (same block). Here we noticed there was a different clone for Sav B, and that around 75% was the other clone. So we realised we needed to remove the 12 we had done that were clone 95 and replace them with clone 76.
- 6.57 finished checking clone info.
- 7.09 set up 12 vines 6 vines in..
- Phenology 1-4 leaves (E-L 7-11).
- 7.25 we heard that sprinklers would be in use for the next few hours in the other McIntyre blocks we wanted so we drove around the site to check layout and then left.
- 7.55 Arrived NK'MIP Cellars, and left car in carpark.
- 8.05 Started sampling Syrah block C
- Lots of age variety in this block, lots of very young (milk carton) plants mixed with mature vines. Maybe there was a die-off event?
- Phenology green tips to 5 leaves, although mostly 3 to 4 leaves. (E-L 4-12, although mostly 9-11).
- Faith also noticed fertilizer? pellets in the soil.
- Vines on the top of the hill looked further along phenologically than those at the bottom.
- 8.40 Finished block C Syrah.
- 8.43 Arrived at lower NK'MIP (on foot).
- 8.45 we started on block G (merlot).
- The vines very far along top of the hill. Phenology 5/6 leaves and inflorescence really obvious. Shoots 20cm long. (E-L 12-13).
- 9.05 set up bottom 12 vines of block G, and then walked up the line to set up the top 12 vines.
- Lower block Phenology 3 or 4 leaves. Some only 1 leaf. (E-L 9-11, although some 7)
- Upper of block Phenology 1 to 4 leaves, with most 2 to 3 leaves. (E-L mostly 9, some 7-4).

- Lots of vines had cordons cut off, the wound painted blue green, and then canes. Others were still cordon pruned.
- Phenology buds from green tips to 3. A lot of 1 to 2 leaves separated. (E-L 4-9. A lot of 7-9)
- 9.41 Finished first 12 of block B Cab sav.
- We saw lots of orange and pink tape tied on the the poles.
- Mira suggested that the distance counting 6 vines is quite variable.
- 9.45 Started bottom 12 vines.
- Phenology some woolly buds onwards. Mostly 2 to 3 leaves. (E-L 3 onwards, most 9).
- 9.53 Walked to upper 12 vines of same row
- 9.54 started the top 12 vines
- Phenology The vine looked further on than the other vines we looked at in the block. General 4 leaves and a clear inflorescence. (E-L 11/12)
- 10.05 Finished those 12 vines.
- 10.07 we started on Block F Syrah.
- This was a very small block, we struggled to fit even 24 sampling vines in.
- Phenology the vines were quite far on. 6 leaves plus inflorescence and shoots 20 to 30 cm long. Some only had 5 leaves.
- We needed a new role of tape here.
- 10.32 Finished Syrah block F.
- 10.41 Left NK'MIP Cellars.
- 11.10 Arrived Dark Horse.
- We had a break here
- 11.17 We were going to start block G, but we noticed the vines were on their own root stock. SO we went to look at block H as an alternative, but the plans were too young. SO we went back to block G.
- We set up bottom 12 vines here.
- Phenology 2-3 leaves open, some had only 1 leaf and there were a few buds. (E-L some 1/2-7, others 9)
- 11.34 Finished these vines and walked down the line.
- 11.38 Started next 12 vines at top of line.
- One of the vies had canes that crossed over. We decided to use the direction of the end of the cane and ignore the crossover to chose which cane to sample.
- Phenology was diverse. from 1 leaf to 5 leaves. Most 2 to 3 leaves. (E-L 7-12)
- 11.49 finished these vines. walked back down the row.
- 11.52 started middle 12 vines.
- Phenology same as in rest of block.
- 12.03 finished those vines.
- 12.05 walked to Chardonnay own root block B. Then we left.
- 12.12 We tried to do the Merlot block B, but did not.
- This was because a nice man came on a quadbike to warn us that he had just sprayed sulfur there. We had had the all clear from Mike the day before, but had not double

- checked the spraying schedule. This was a mistake, always check the boards.
- We then decided to leave and finish Dark Horse another day.
 - 12.36 Arrived back in McIntyre.
 - Lunch break.
 - 12.57 Set block J Chardonnay middle row.
 - Phenology 3 to 4 leaves. (E-L 9-11)
 - We noted that this block had south and north facing slopes in it.
 - 13.06 finished setting up the vines
 - 13.12 removed the mistaken row we set up first thing in the morning.
 - 13.22 set 12 vines on the other side of block J (drove there).
 - Phenology mainly 2 to 3 leaves, with some 1 leaves and green tip buds. (E-L mostly 9, some 4-7)
 - 13.47 Moved to block C (Riesling?), and started setting up 12 vines.
 - Phenology mostly green tips to 2 leaves. (E-L 4-7)
 - 14.00 Finished and walked up the line to the other end to set up the bottom 12 vines.
 - 14.10 walk to middle 12 vines.
 - We saw lost of baby vines (milk cartons) in this block.
 - 14.14 start setting up middle 12 vines.
 - Phenology woolly buds to 2 leaves. (E-L 3-7)
 - 14.22 Finished and walked to the car.
 - 14.27 started block A.
 - Phenology woolly buds to 1 leaf. (E-L 3-7)
 - 14.44 Finished. Walked along and then down another row to do 12 middle vines.
 - 14.54 finished. Walked back to car and drove to next vines.
 - 15.00 left the car.
 - The vines at the top seemed further along phenologically. green tips to 2 leaves. Maybe because this bit was on top south facing, whereas the bit we looked at before was in a sort of dip.
 - 15.08 finished those 12 vines.
 - 15.13 moved to block E Sav B
 - Phenology generally green tip buds to 2 leaves. (E-L 3-7)
 - 15.21 Moved to middle of row.
 - 15.24 Did 12 vines.
 - 15.35 Drove around the block, and did the bottom 12 vines.
 - 15.45 Left vineyard.
 - 16.30 Arrived at Penticton.
 - After a break we typed up notes and chose blocks for Quails' Gate vineyards.

0.6 9 May 2020

- 5.45 Left Penticton
- 6.46 Arrived at Quails' Gate main vineyard staff carpark, where we left the car.



Figure 1: There were lots of young vines in this Syrah block (QG 2-1)



Figure 2: A bud in Quail's Gate Syrah block 2-1 that we think was damaged by cutworm

- 7.00 Arrived by foot at the lower part of the Quails' Gate vineyard, closer to the lake. We started at block 6 Sav B.
- The signs are not great at this vineyard. They are laminated white pieces of paper, and many are missing or damaged. We mostly had to look at the signs at each corner of the blocks with QR codes, but these don't have row numbers.
- Quite a few vines in this block only had one or cordon or cane.
- Phenology E-L 3-7.
- These vines were on quite a steep south facing slope.
- 7.17 Finished those 12 vines.
- 7.19 We moved onto the middle 12 vines.
- Phenology E-L 5-9.
- 7.28 Finished these 12 vines and waded down the row to bottom 12 vines.
- 7.31 Started to bottom 12 vines.
- We had to skip quite a few vines because they did not have enough spurs with buds.
- 7.44 Finished those vines and walked to the Syrah block 2-1.
- The Syrah block had a lot of young plants in amongst the older vines. It took us awhile to find 12 vines that had enough older vines. This problem was especially bad in the West end of the block (Figure 1).
- we think we saw a cutworm damaged bud, see Figure 2.
- 8.00 Finished those 12 vines, and walked down the row.
- Faith noticed the portable washrooms are locked. We should ask if we can get the code.
- Faith lost her phone and then found it again.
- 8.24 Finished the lower 12 vines and walked around to the middle 12 vines.
- Phenology E-L 1-7.
- This block goes almost right to the edge of the lake.
- Above this point there were lots of missing vines.
- 8.35 Walked back to car.
- 8.45 Back to the car, and then from there into the upper vineyard.
- we changed the batteries in the GPS.
- 9.03 Arrived at Chardonnay block 5-4
- Here we saw 2 plants with cutworm damage on them. One only had a single damaged bud that we saw, whereas another one had lost most buds.
- Phenology E-L 3-9.
- 9.13 Finished these 12 vines, and walked up the row.
- This is a really long block with a path through the middle.
- 9.19 Arrived at the top of this block to do the top 12 vines.
- some buds looked damaged.
- Phenology E-L 1-7. Most 3-4.
- 9.33 Finished these vines and walked to next block.
- 9.37 Started Merlot block 6-1.
- Phenology mostly 4-5.

- These buds were really pink.
- 9.46 Finished those 12 vines and walked to the top of the row.
- Phenology E-L 3-5.
- 9.55 Finished those vines and walked to the middle of the row.
- 10.00 We did the middle 12 vines.
- Phenology 1-5. Mostly 3 and 4.
- 10.09 Finished these vines and walked to block 4-8 Pinot noir
- On the way we noticed a weather station near the bottom of Merlot block 6-2.
- 10.15 We did the top 12 vines of block 4-8 Pinot noir.
- Phenology E-L 1-9.
- Canes seemed further along than cordons.
- 10.23 Finished these vines and walked down to do the bottom 12 vines.
- 10.26 Reached the bottom of the row to set up the bottom 12 vines.
- Phenology E-L 1-9. Most 4-5, and pinkish.
- 10.33 Finished these 12 vines, and started walking to the car.
- 10.45 Reached the car and had a break.
- 10.50 Walked to the Pinot noir block 3-3.
- Phenology E-L 1-3. Mostly 1.
- 10.59 Finished those 12 vines and walked to upper 12.
- 11.01 Started the upper 12 vines.
- Phenology E-M mostly 1-2.
- 10.10 Finished those vines.
- We saw a lot of mourning doves and American robins at Quails' Gate in general.
- 11.14 We went to Sav Banc block 4-6 and started upper 12 vines.
- Phenology E-M 3-7.
- 11.25 Finished these vines and walked to the top of the row.
- 11.28 Set up the top 12 vines.
- Phenology E-L 4-9.
- 11.37 Finished these vines and walked to the middle row 12 vines.
- 11.39 Started on middle 12 vines.
- Phenology E-M 5-7
- 11.46 Finished those vines and walked to Chardonnay block 3-4b.
- 11.50 Started the top 12 vines.
- Phenology was a bit different for cordons and canes.
- Phenology (cordons) E-L 3-7
- Phenology (canes) E-L 7-9.
- 11.58 Finished those vines, and walked down to the bottom of the row.
- 11.59 Started the lower 12 vines
- Phenology same as above.
- 12.07 Finished those vines and walked to the car.
- 12.10 Left for Mannhardt vineyard.

- 12.15. Had a lunch break.
- While we were eating, a lady walked back and asked what we were doing. We had a nice chat, and then she told us about her father. It turns out she is the daughter of the an who set up the vineyard at Mannhardt, although it was an orchard first. Her name is Ines, and her father is Reiner. According to Ines, her father kept climate records for 40 years at that sites. She said we could try and email him (and cc her) to ask for it, but we should be aware that he is over 90 and had a few strokes so is not very fast. Her email is ines.mannhardt@telus.net. Reiner's email is reiner_mannhardt@telus.net.
- 13.45 Finished lunch.
- This vineyard has much better signs
- 12.56 Arrived by foot (we left the car near the gate) to Riesling block 8-6.
- There was quite a bit of cutworm damage
- Phenology E-M 3-7
- 13.04 Finished 12 upper vines and walked down the block.
- We decided not to set these 12 vines at the very bottom because there was a dip at the bottom of the block that looked like it might effect climate. As we were only sampling 24 vines we didn't want that much within block variation.
- 13.09 arrived at the middle/end of the block to set up the 12 vines
- Phenology E-L mostly 3, some 5.
- 13.15 Finished, and walked to next block.
- 13.18 Set up 12 vines in Pinot noir block 8-8.
- Phenology E-L mostly 7, some as early as 4.
- 13.26 Finished, and walked up the row.
- There seemed to be more grassy weeds here than the other vineyards.
- 13.26 Did the top 12 vines of this block.
- Phenology E-L mostly 4-7. Some 3.
- 13.37 Finished and walked to Riesling block 9-1.
- 13.44 Arrived at the top of Riesling block 9-1, and started setting up 12 vines.
- Phenology E-M mostly 4-5.
- 13.51 Finished those 12 vines, and walked sown the row.
- 13.52 Arrived at lower 12 vines.
- Phenology E-L 4-7.
- 13.58 Finished those 12 vines and walked up to the middle row for the last 12 vines.
- 14.00 set 12 vines
- Phenology E-L 4-7.
- 14.08 Finished and waled to the car.
- 14.12 Got to car to drive home.
- 15.30 arrived home in Penticton. The roads were a lot busier this way, but not problematic.
- A breake and then note writing.

0.7 TO DO:

- Make "how to get where document" add links to Carl's maps on github
- Seb Farms names - first 2 letters = variety, 3rd letter = block? Add block for each variety to the variety names document for Carl
- add Judy contact info to repo
- Maybe contact Mr Mandheadrt
- Make a protocol