

# Red Blotch in the Field



*A Tale of Two Vineyards*

# Where are we?

“Welcome to the land of confused people”



**RED BLOTCH POSITIVE**



**RED BLOTCH NEGATIVE**



# Vineyard #1

13 acres, PN 115 (2 ac), 667 (3 ac), 777 (8 ac) all SR

Propagated in house, planted 2008



## Vineyard #2

21+ acres, all PN, many clones and material sources  
“Lower” = SR, **propagated in house**, “Upper” = grafted/nursery  
Planted from 2009-2012



“Lower” Block – 9.3 acres PN/SR



## Vineyard # 2

“Upper” block – 12 ac. PN all grafted to 3309 or 101-14



2013

# 2013 State of RB research

- No known vector
- Virginia Creeper Leafhopper *suspected*
- No “confirmed spread” of RB in the field
- Leafroll a larger concern

# Vineyard #1 - 2013

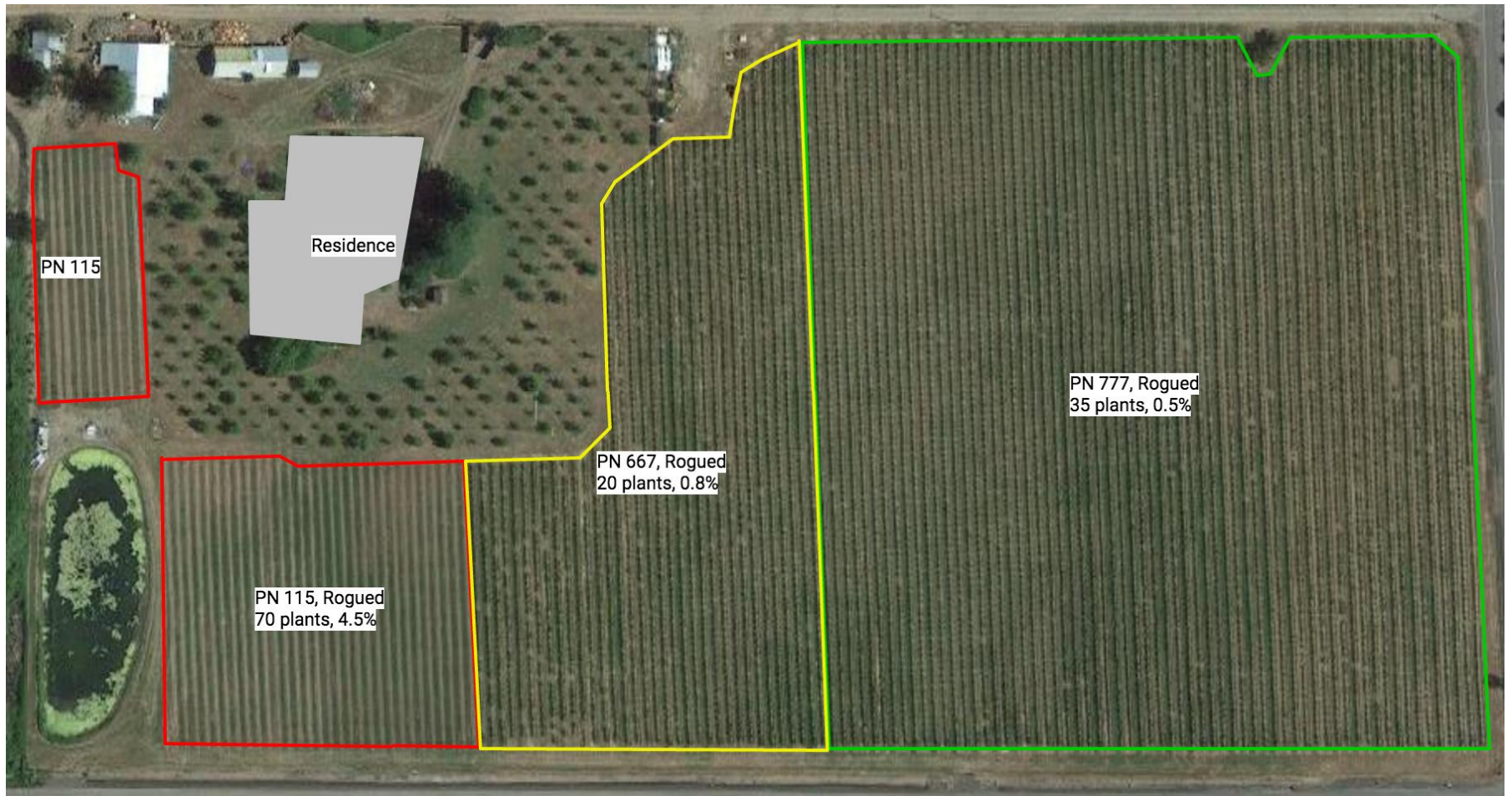
## Red Blotch or Leafroll?

- Some red leaf symptoms appeared, random (0-7 plants per row), higher incidence in PN/115, however no discernable concentration within rows
- Rogued 125 plants in total (1.2%) from the vineyard, 70 from PN 115 blocks (4.5%)
- **No RB+** (or LR) result - tested 4 red leaf symptomatic vines – leaf samples, Cornell lab



# Vineyard #1 - 2013

Rogued 125 plants, 1.2% of vineyard



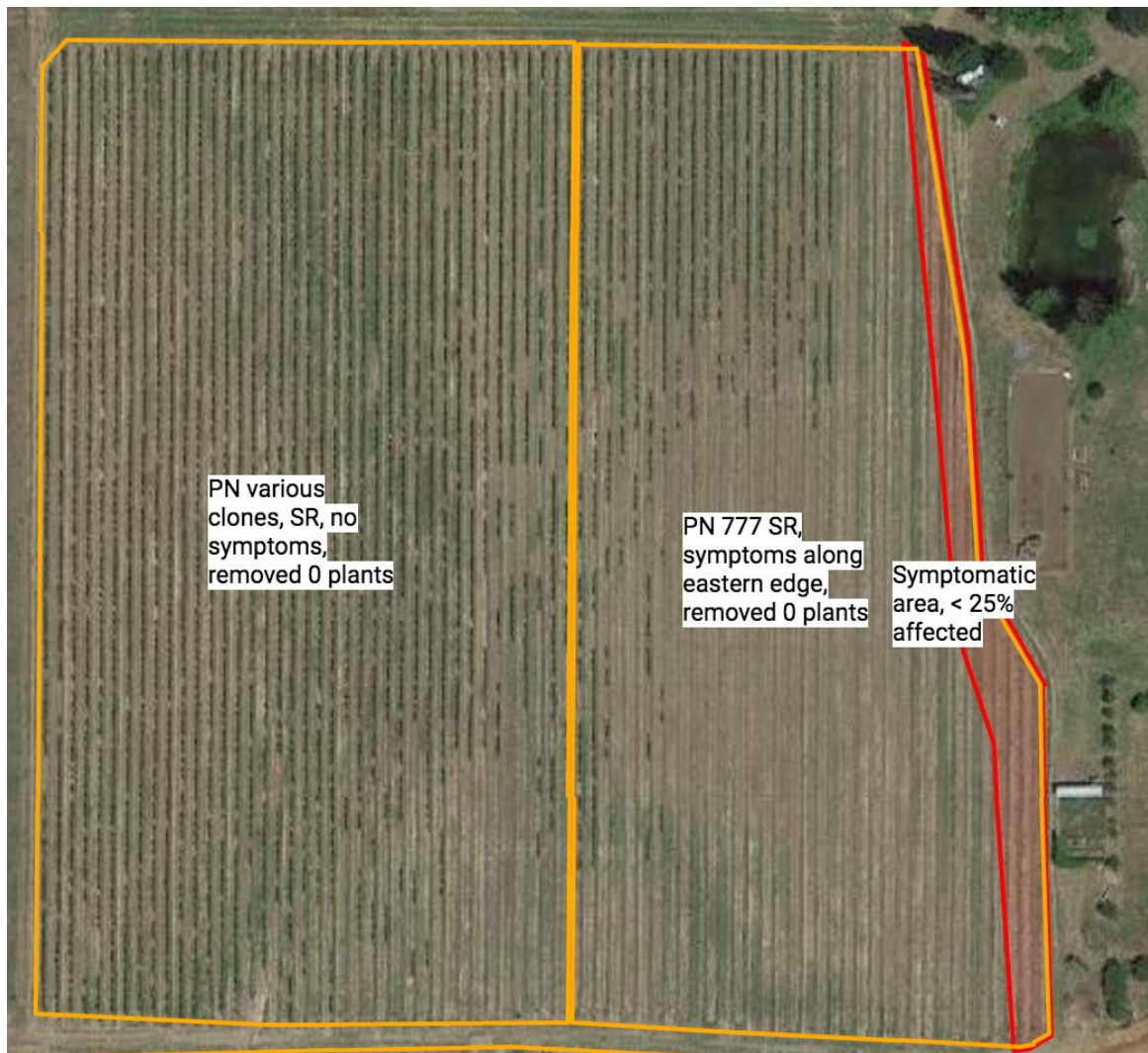
# Vineyard #2 - 2013

Red Blotch or Leafroll?

- Symptoms concentrated in 828 clone of “upper” block
- Removed 734 plants (entire clonal block, 8 rows, 0.9 ac.) Upper PN 828
- One RB+ result (no LR) - tested 3 symptomatic vines – leaf samples, Cornell lab

# Vineyard #2 - 2013

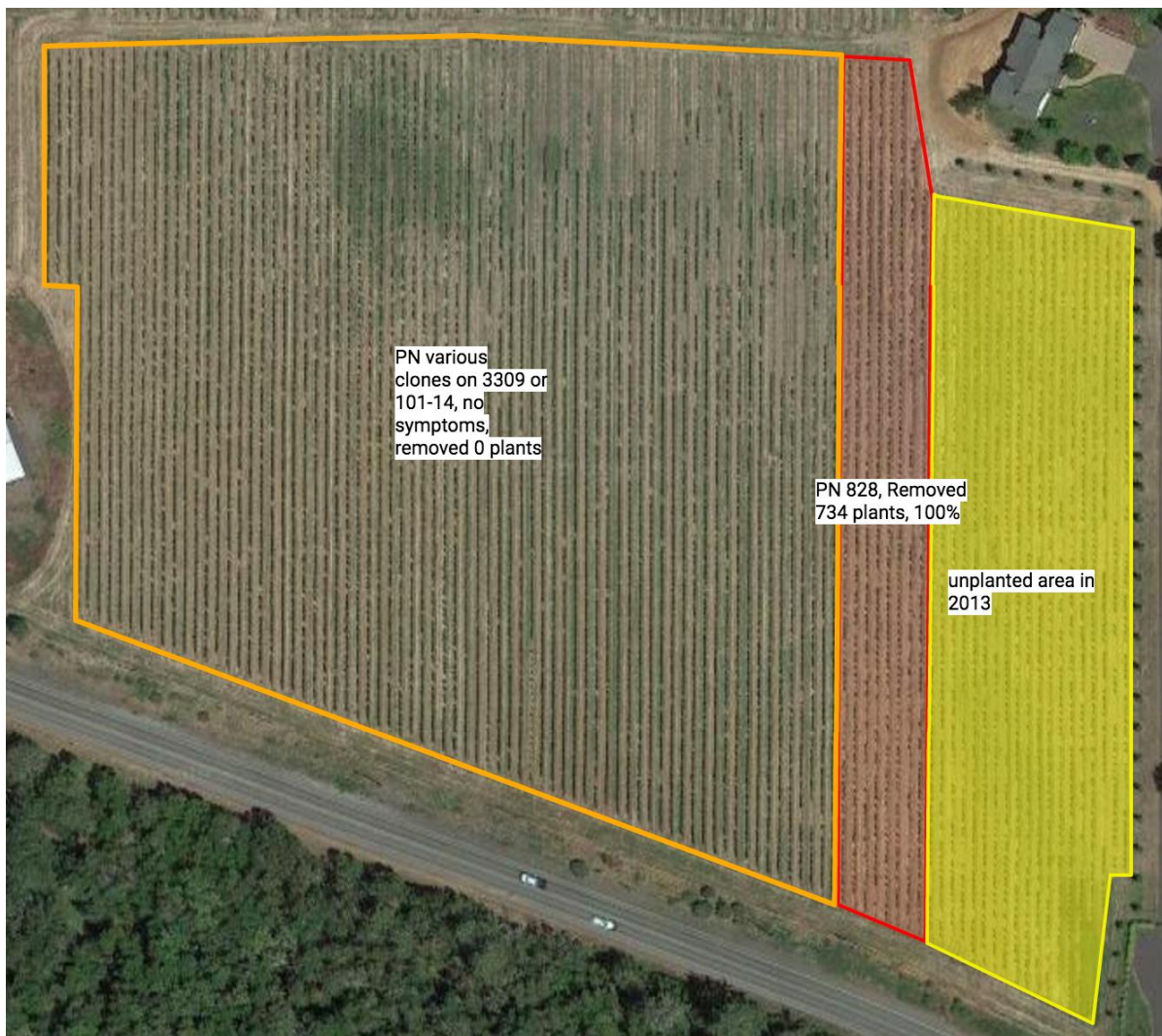
## Lower block





# Vineyard #2 - 2013

## Upper block



2014

# 2014 State of RB research

- *Still* no known vector
- Virginia Creeper Leafhopper *still* “suspected”
- *Still* no “confirmed spread” of RB in the field
- Leafroll *still* a major concern/possibility



# Vineyard #1 - 2014

## Spring:

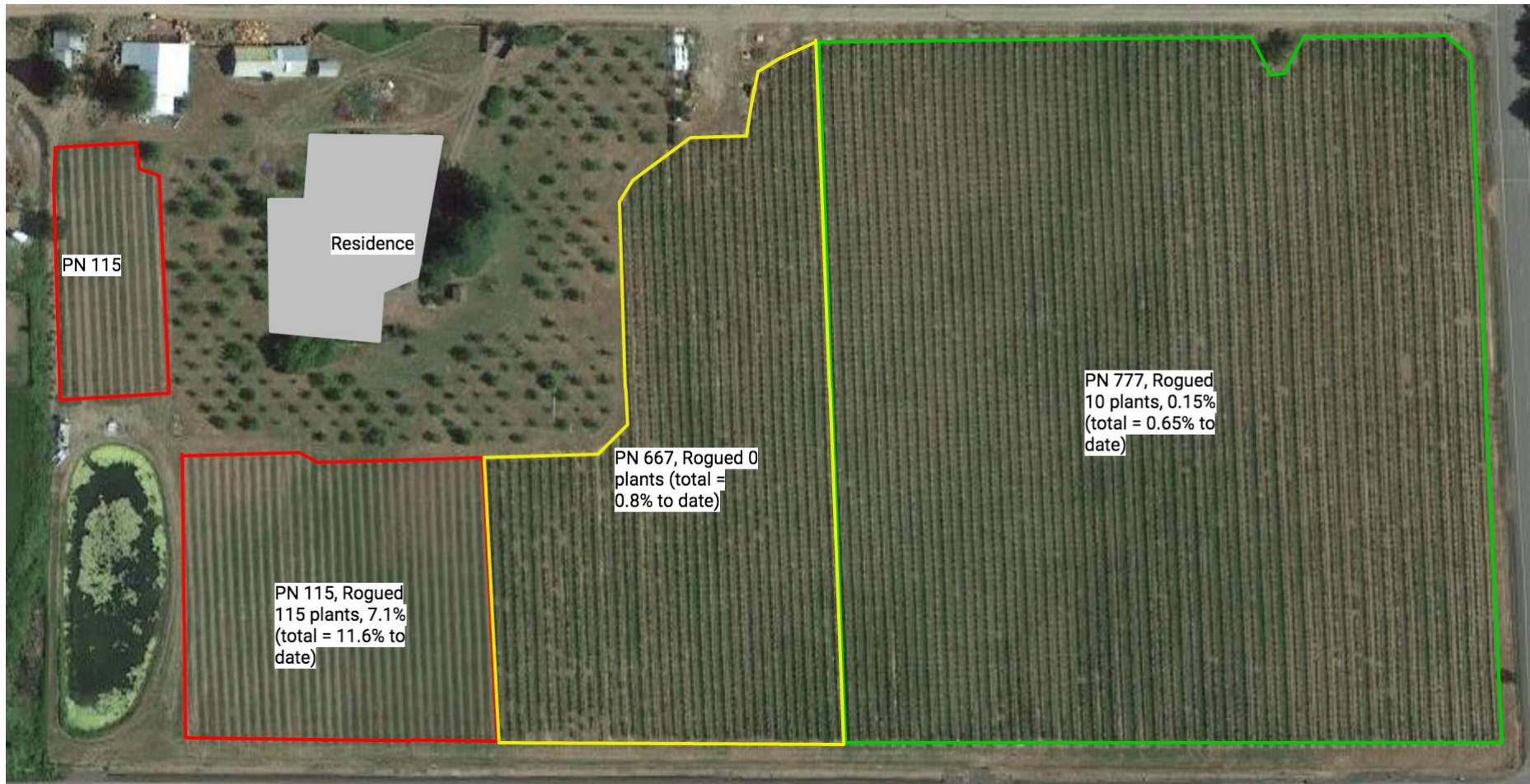
- Replanted rogued vines

## Fall:

- Began flagging symptomatic vines
- “Random” symptoms reappear, primarily in PN 115 blocks
- Rogued 115 vines from PN 115 = **7.1%**
- Rogued 0 vines from PN 667
- Rogued 10 vines from PN 777 = **0.65%**
- **15/15 (leaf) samples (10 symptomatic, 5 adjacent asymptomatic) test RB+, all in PN 115/SR (Cornell lab)**

# Vineyard #1 - 2014

Rogued 125 plants, again, 1.2% of vineyard



# Vineyard #1 - 2014

## RB test results





# Vineyard #2 - 2014

## Spring:

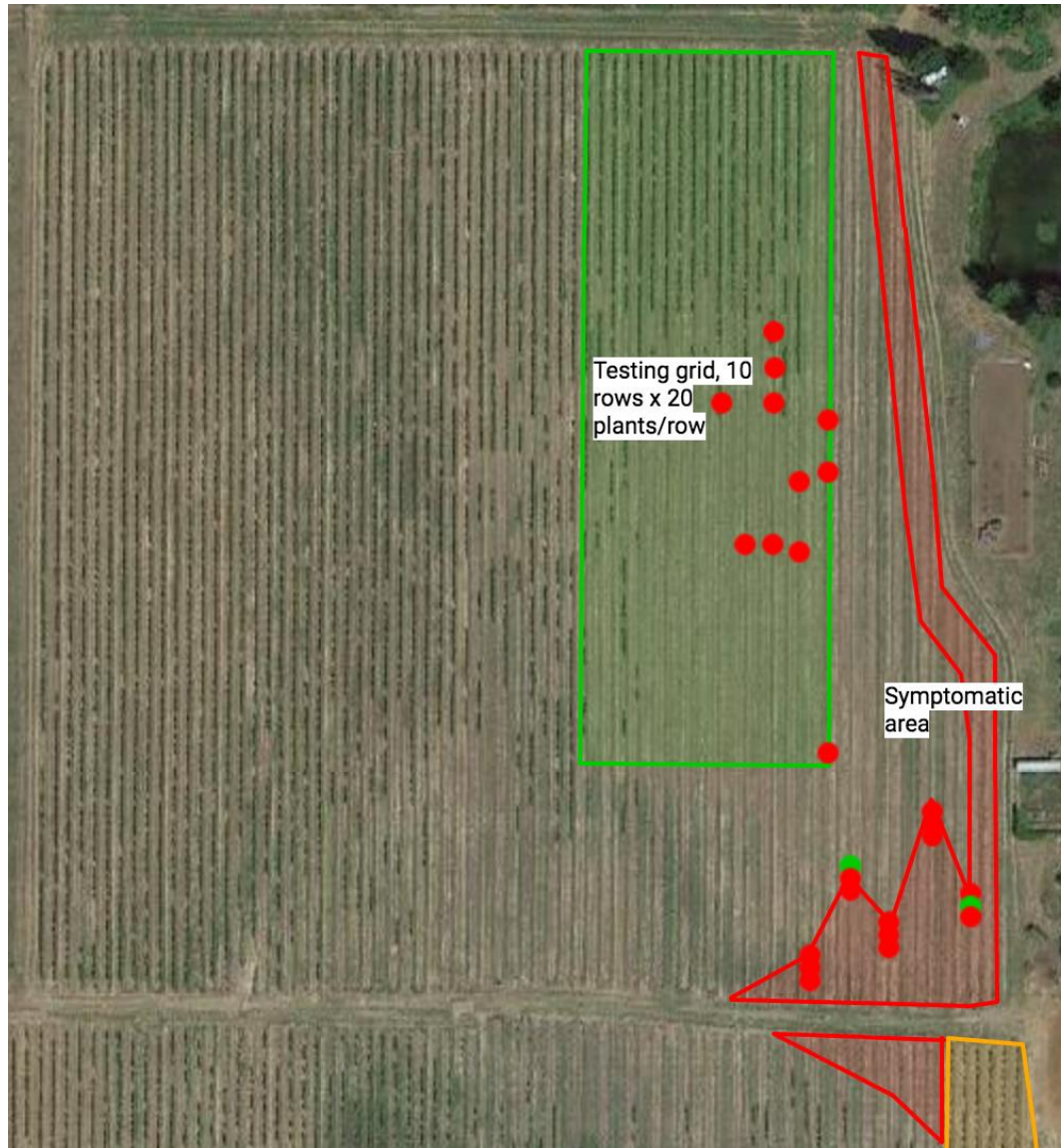
- Replanted and expanded “Upper” block

## Fall:

- Began flagging symptomatic vines
- Symptoms increase only slightly
- **NO ROGUING IN 2014**
- 13/15 (leaf) samples (10 symptomatic, 5 adjacent asymptomatic) RB+, all in PN 777/SR, “Lower” (Cornell lab)
- 11/200 (leaf) samples RB+ (5.5%)- 20 row x 80 plant grid (OSU/UC Davis)

# Vineyard #2 Lower block – 2014

**NO VINES REMOVED – 24/215 TEST RB POSITIVE**

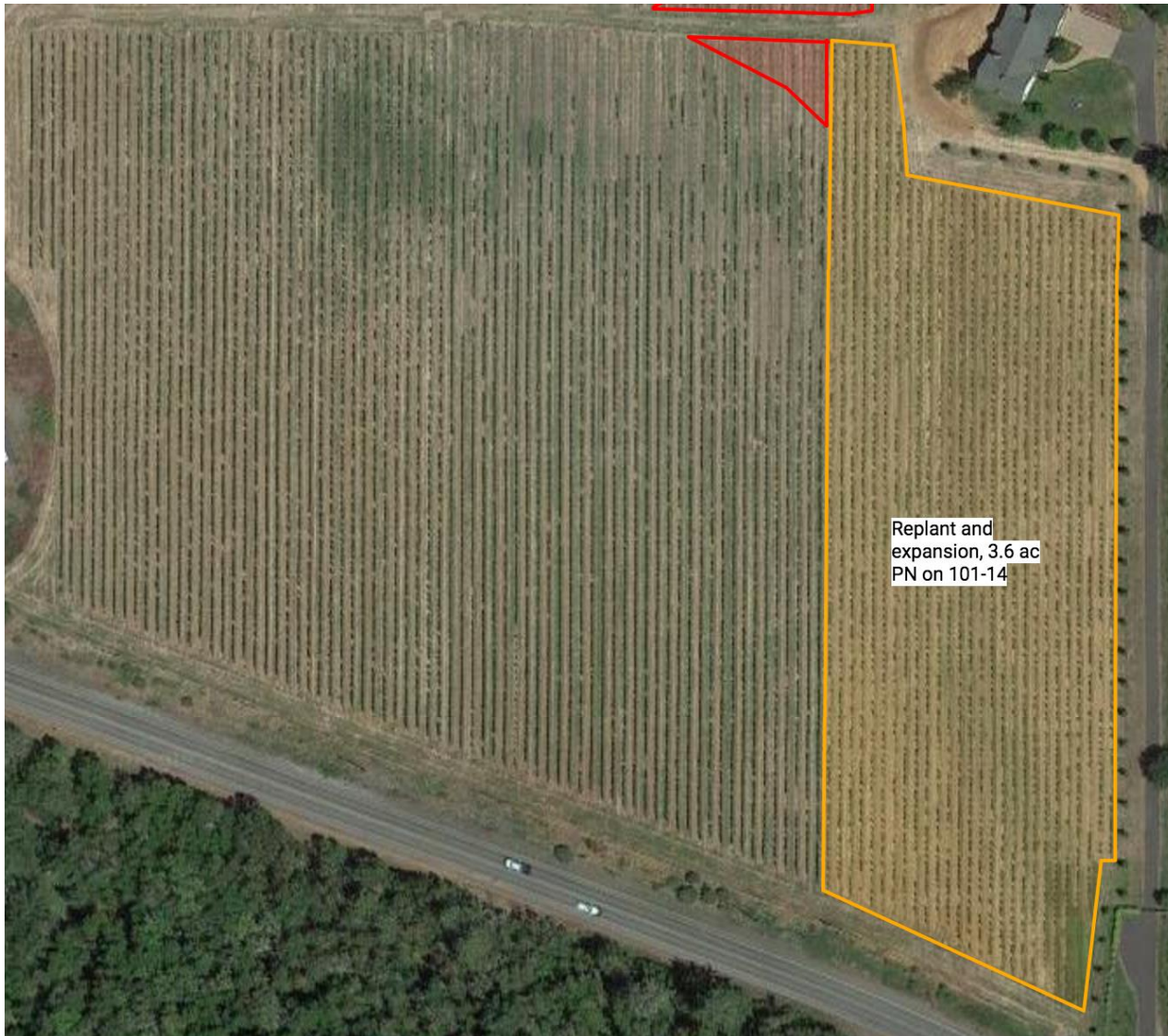






# Vineyard #2 Upper block - 2014

**NO VINES REMOVED**



2015

# 2015 State of RB research

- *Still* no known vector, first rumors of tree-hoppers as a possibility
- Virginia Creeper Leafhopper *still* “suspected”, although this has been called into question
- Spread of RB in the field acknowledged by some (but not all) researchers

# 2015 - Vineyard #1

## Spring:

- Replanted rogued vines

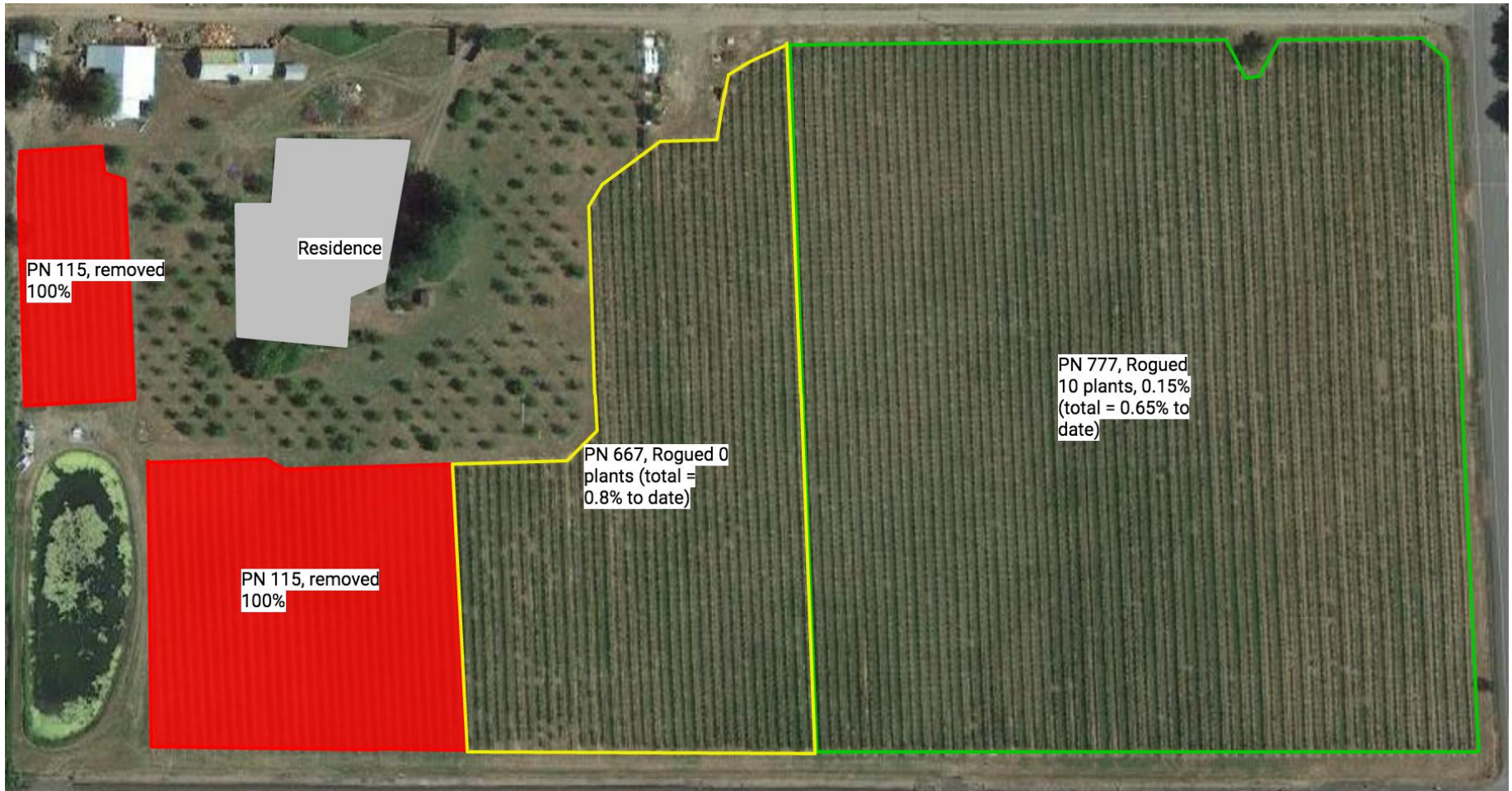
## Fall:

- Continued flagging symptomatic vines
- PN 115 beyond 50% symptomatic
- Removed entire PN 115 block (including new replants) = 2 ac., **15%** of vineyard
- Created testing grid in PN 667- every 5 rows, every 3rd panel, 26 composite tests, all wood samples, Cornell lab - **0% RB+**



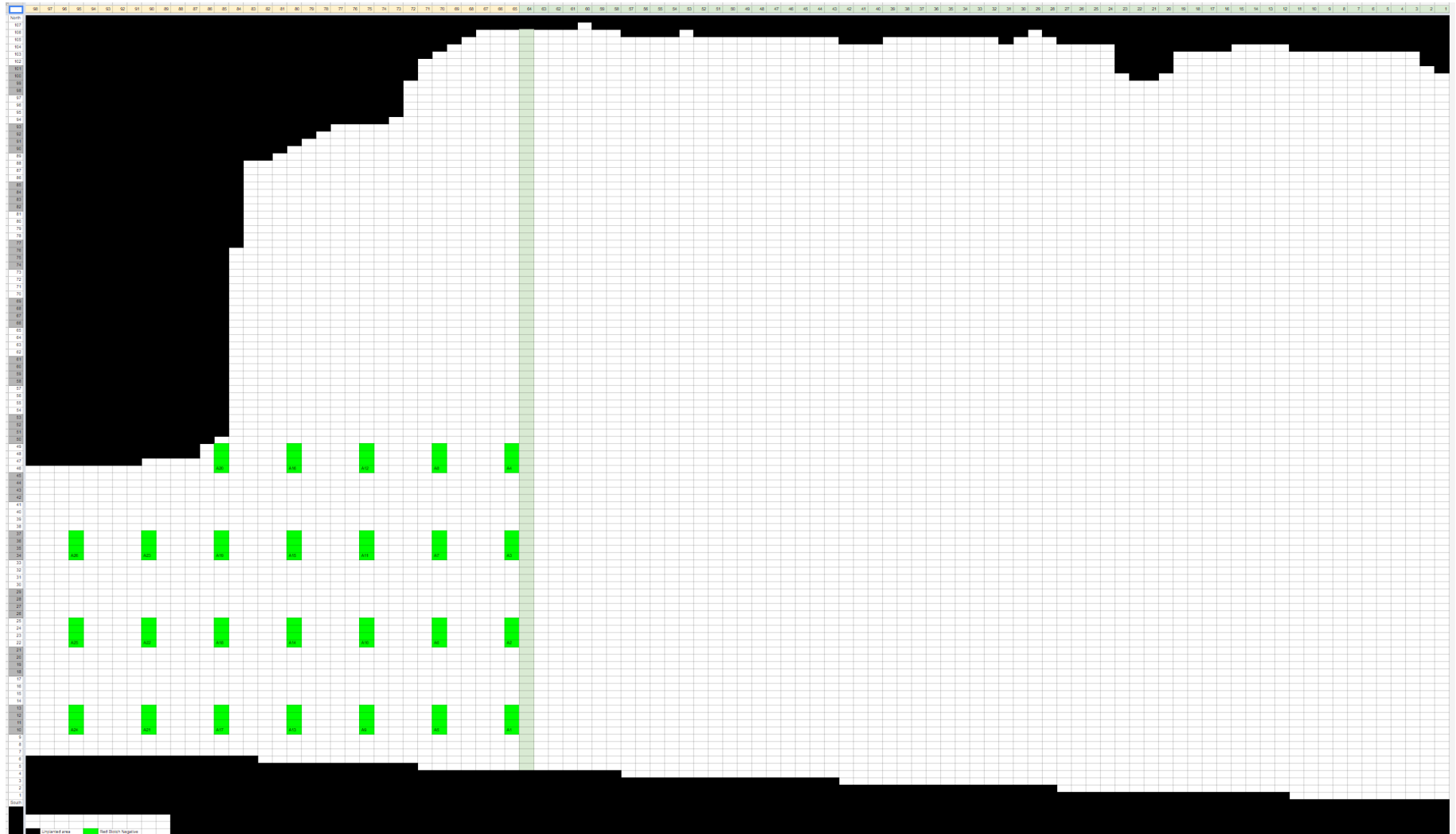
# Vineyard #1 - 2015

Removed PN 115 blocks- 2 ac., 15% of vineyard



# Vineyard #1 - 2015

## Testing grid

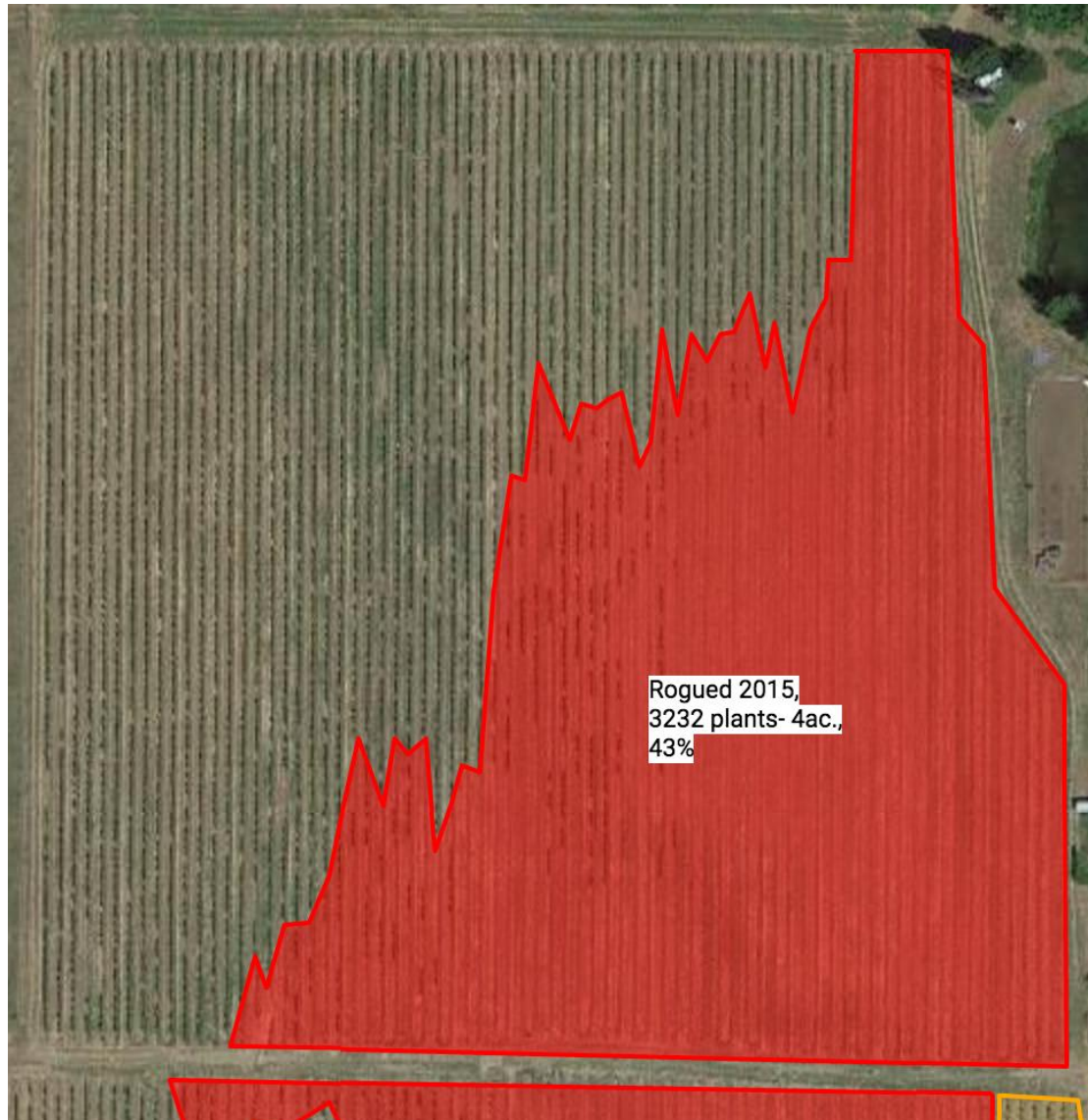


# 2015 – Vineyard #2

## Fall:

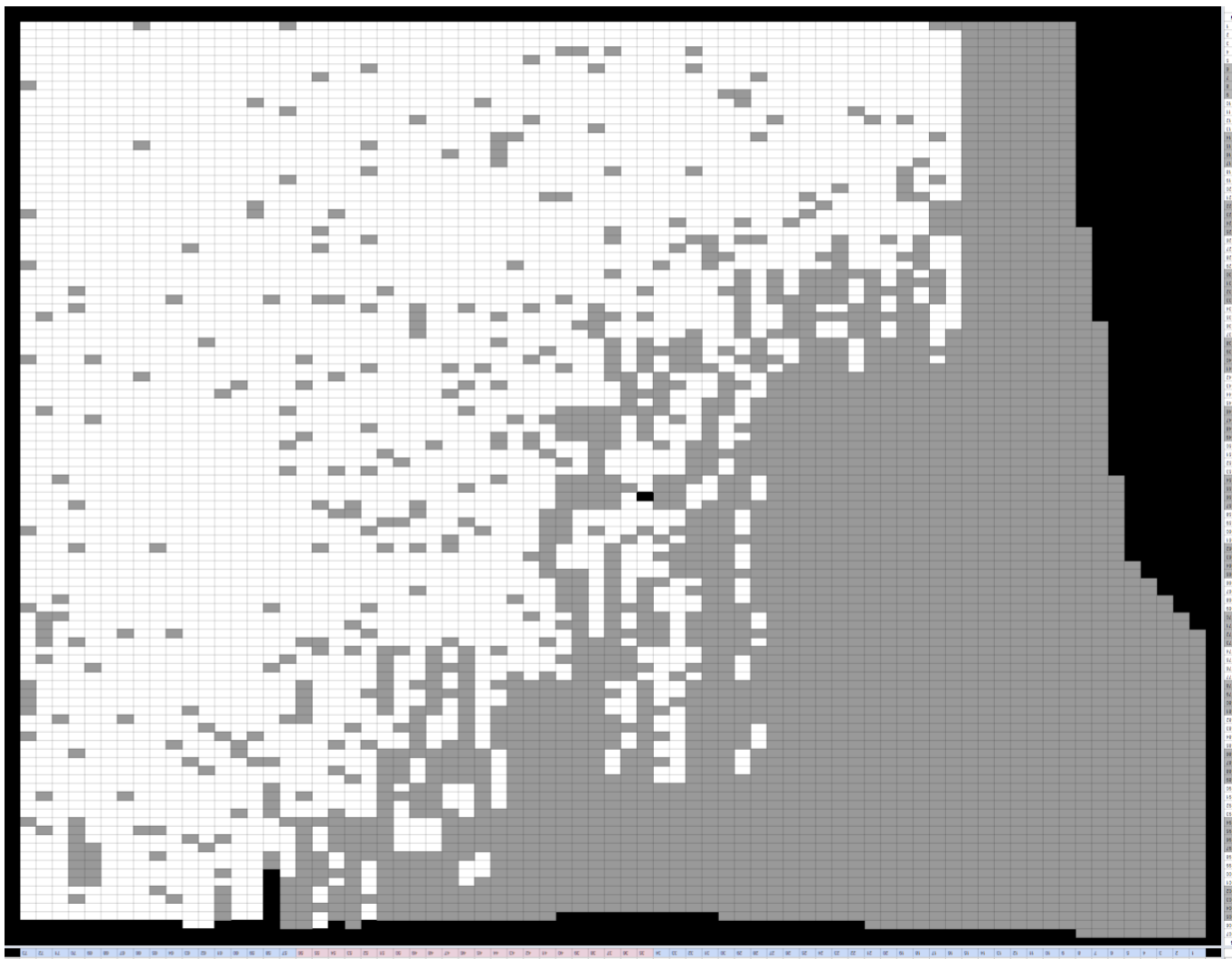
- Continued to flag/map symptomatic vines which increased *nearly ten fold*
- Onset of symptoms continued *into senescence*
- Rogued 1187 plants in upper = 1.5 ac., **12%**
- Rogued 3232 plants in lower = 4 ac., **43%**
- Removed **26%** of total vineyard in 2015
- 69/200 (leaf) samples RB+ = **35%** same OSU/Davis grid (RB+ results inc. > 6x)
- 20/20 (wood) samples RB+ = **100%** - private lab
- Created testing grid in upper block new/replanted area (all one y/o plants) – every 5 rows, every 4th panel, 30 composite tests, all wood samples, Cornell lab-
  - 5/30 = **17%** total test RB+\*
  - 4/12 = 33% replants test RB+\***
- Created testing grid in upper block established area – every 5th row, every 3rd panel, 28 composite tests, Cornell lab-
  - 2/28 = **7%** test RB+

**Vineyard #2 Lower block – 2015**  
**ROGUED 3232 VINES – 4 AC, 43% of BLOCK**  
**89/220 RB+**



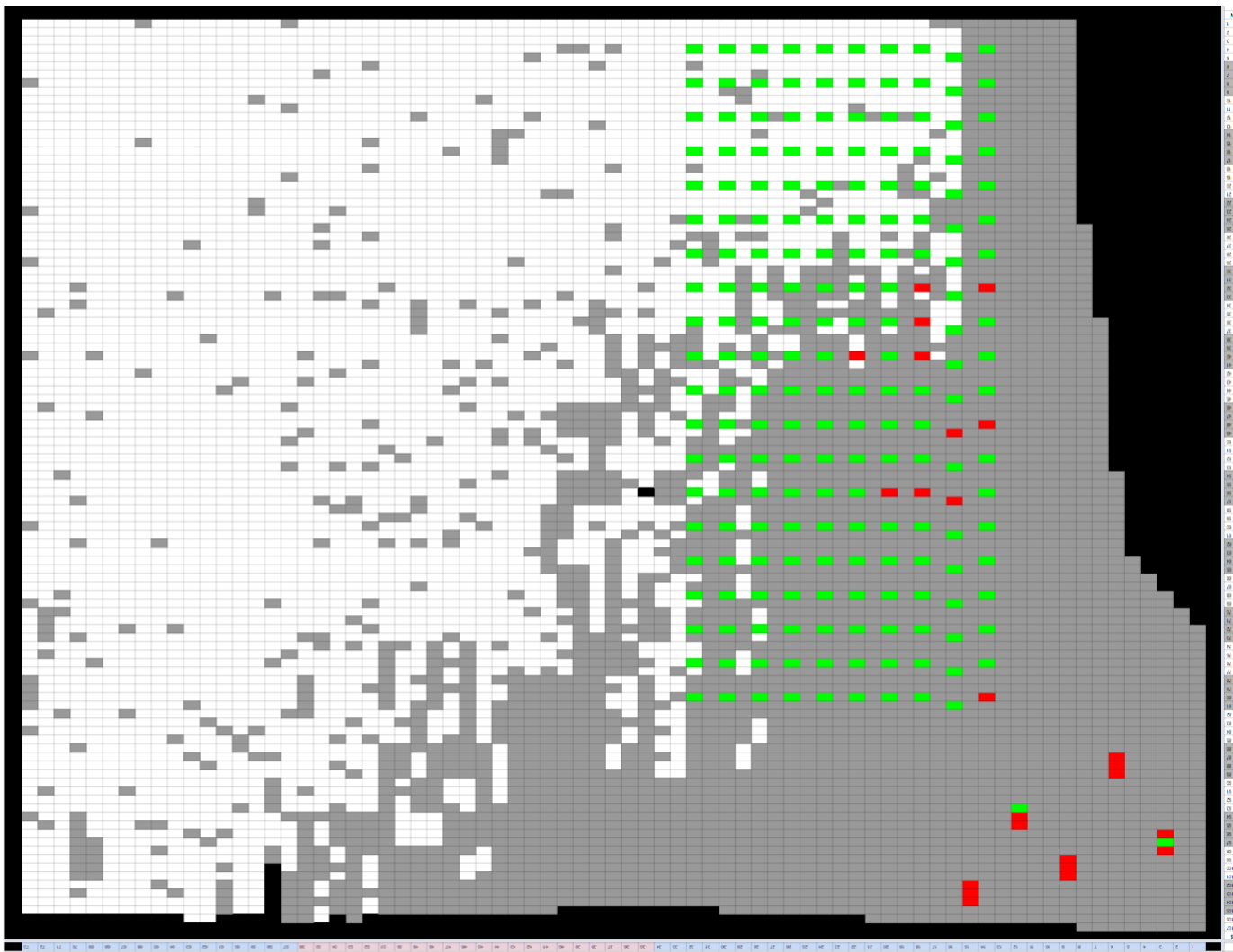


**Vineyard #2** Lower block – 2015  
**ROGUED 3232 VINES – 4 AC, 43% of BLOCK**  
**89/220 RB+**



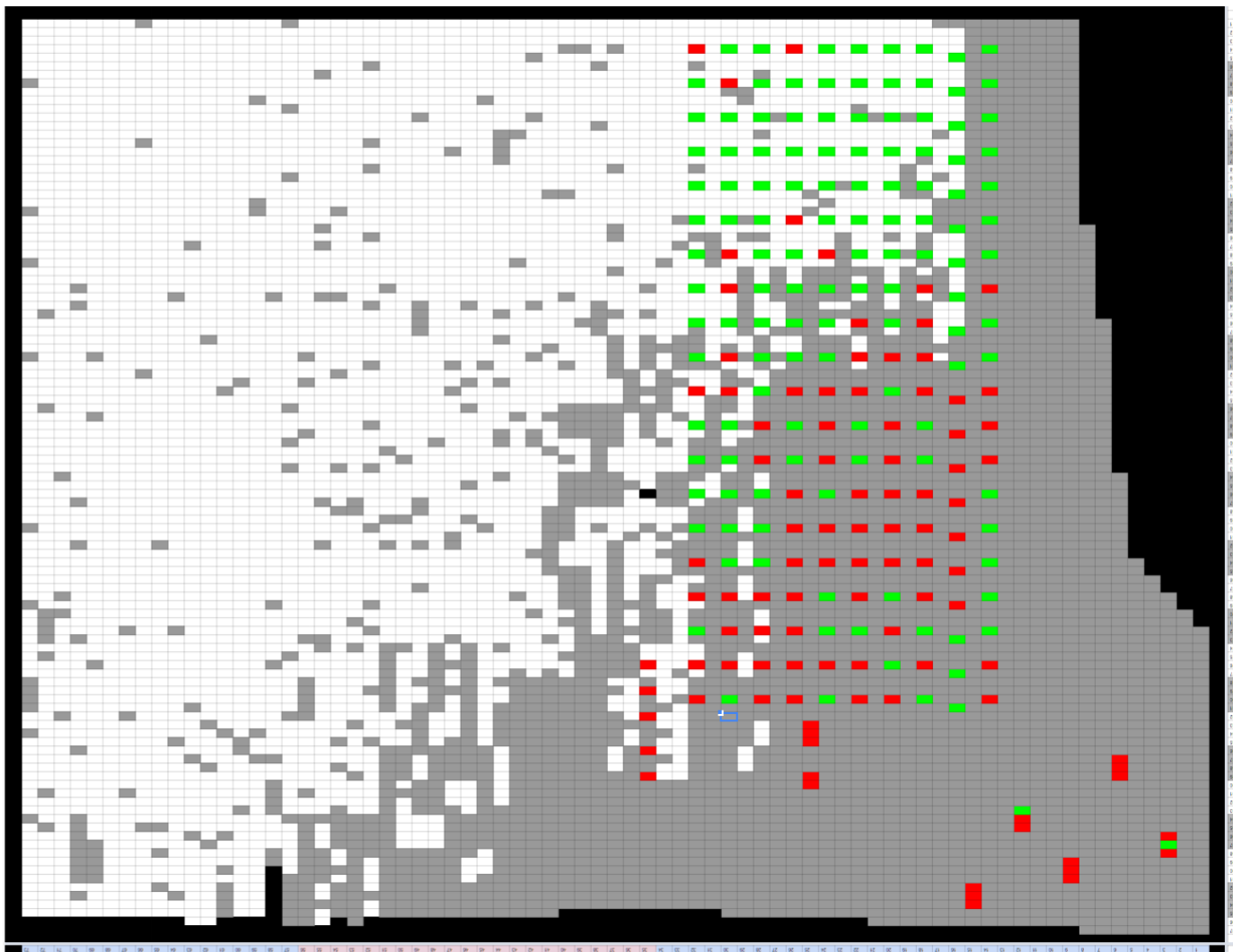
# Vineyard #2 Lower block - 2014

24/215 RB+

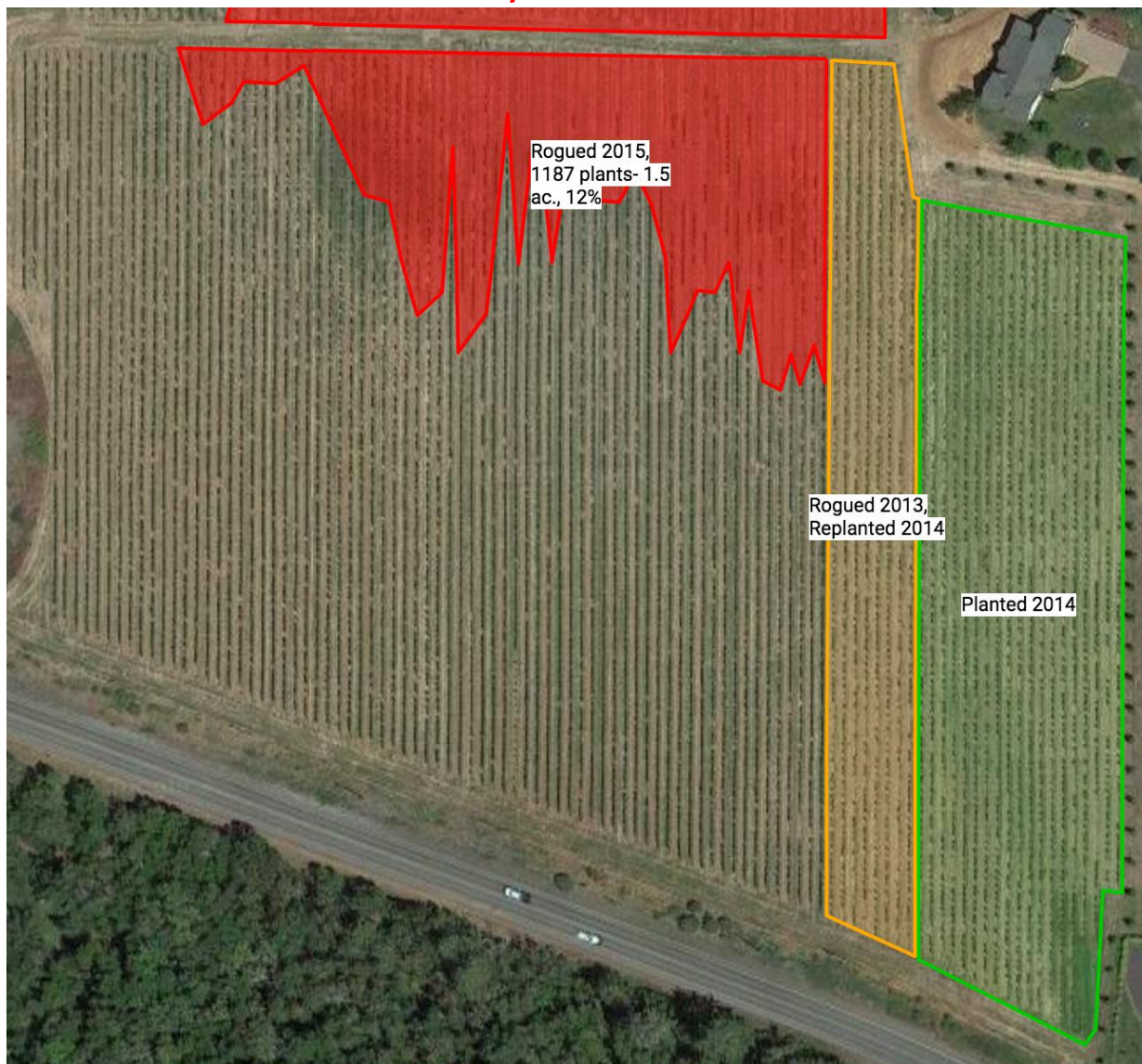


# Vineyard #2 Lower block – 2015

## 89/220 RB+

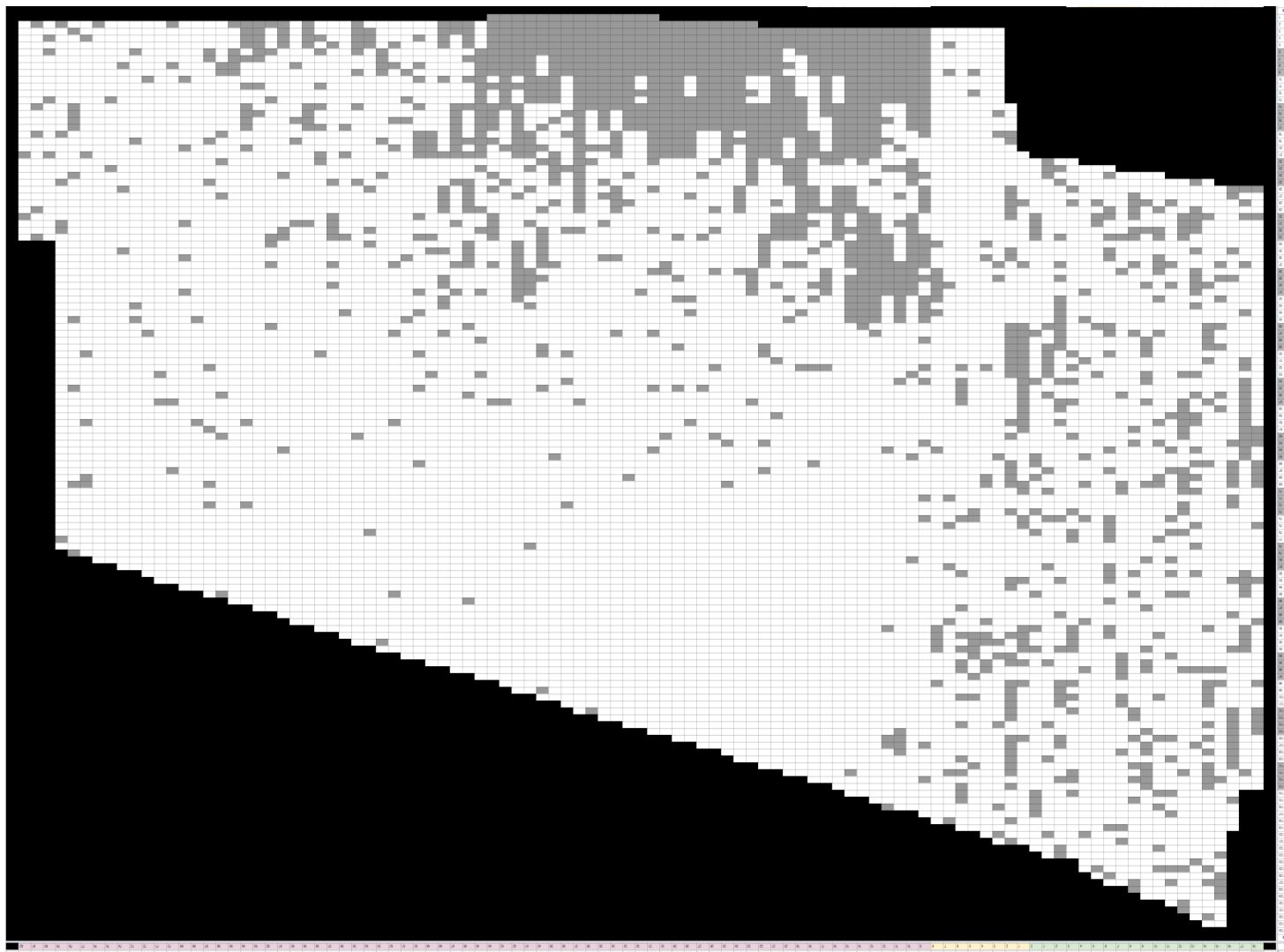


**Vineyard #2** Upper block – 2015  
**ROGUED 1187 VINES – 1.5 AC, 12% of BLOCK**  
**7/58 RB+**



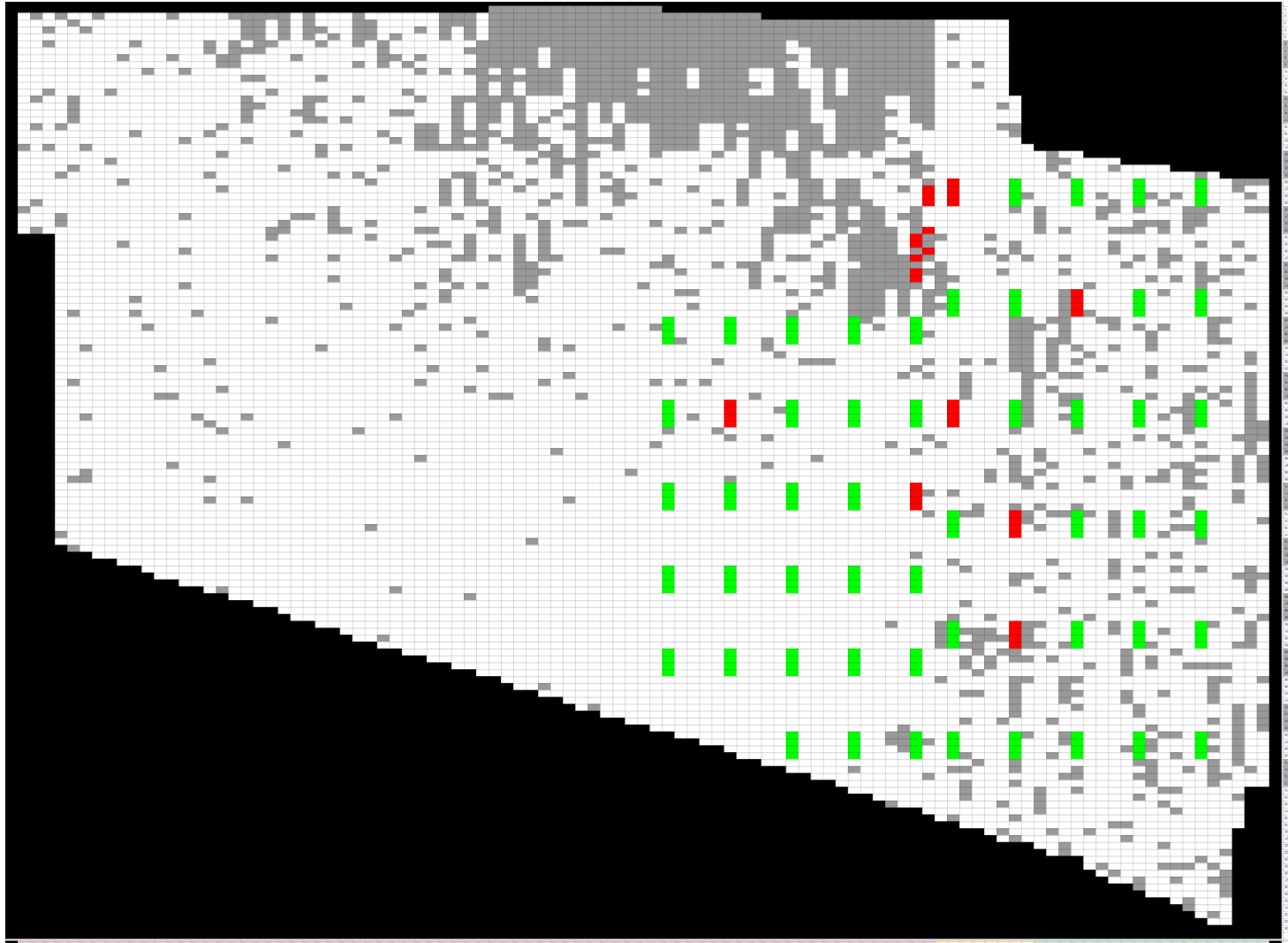


**Vineyard #2** Upper block – 2015  
**ROGUED 1187 VINES – 1.5 AC, 12% of BLOCK**  
**7/58 RB+**



# Vineyard #2 Upper block - 2015

7/58 RB+



2016

# 2016 State of RB research

- Three cornered alfalfa hopper shown to be an effective vector of RB. May or may not be the only vector... work continues on this and other possible vectors
- Virginia Creeper Leafhopper dismissed as a potential vector by many
- Spread of RB in the field acknowledged by many (but still not all) researchers



# 2016 - Vineyard #1

## Spring:

- Replanted PN 115 blocks as PN 667

## Fall:

- Continued flagging symptomatic vines
- Symptom onset continued into senescence
- Rogued 50 plants
- Focused testing efforts on other sites

# Vineyard #1 - 2016

Removed 50 plants - 0.6%



# 2016 – Vineyard #2

## Spring:

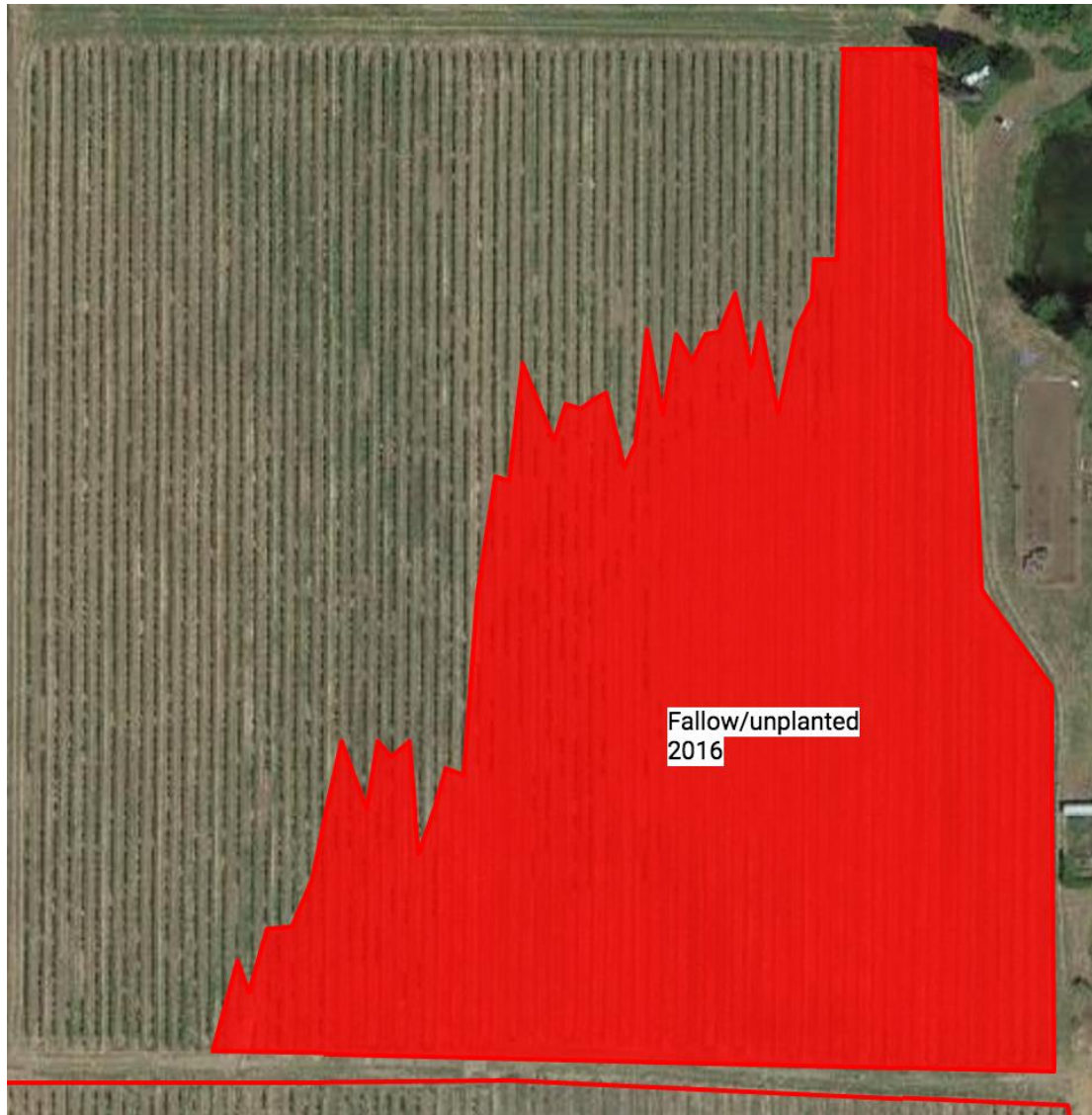
- Replanted Upper block
- Left unplanted section of Lower block to fallow
- Conducted vector “trapping” experiment
- Monitored for tree hoppers throughout the season

## Fall:

- Resumed flagging symptomatic vines but quickly abandoned project as it became apparent that the vineyard was nearly completely symptomatic
- Symptom onset continued into senescence
- Updated maps
- **NO ROGUING IN 2016**

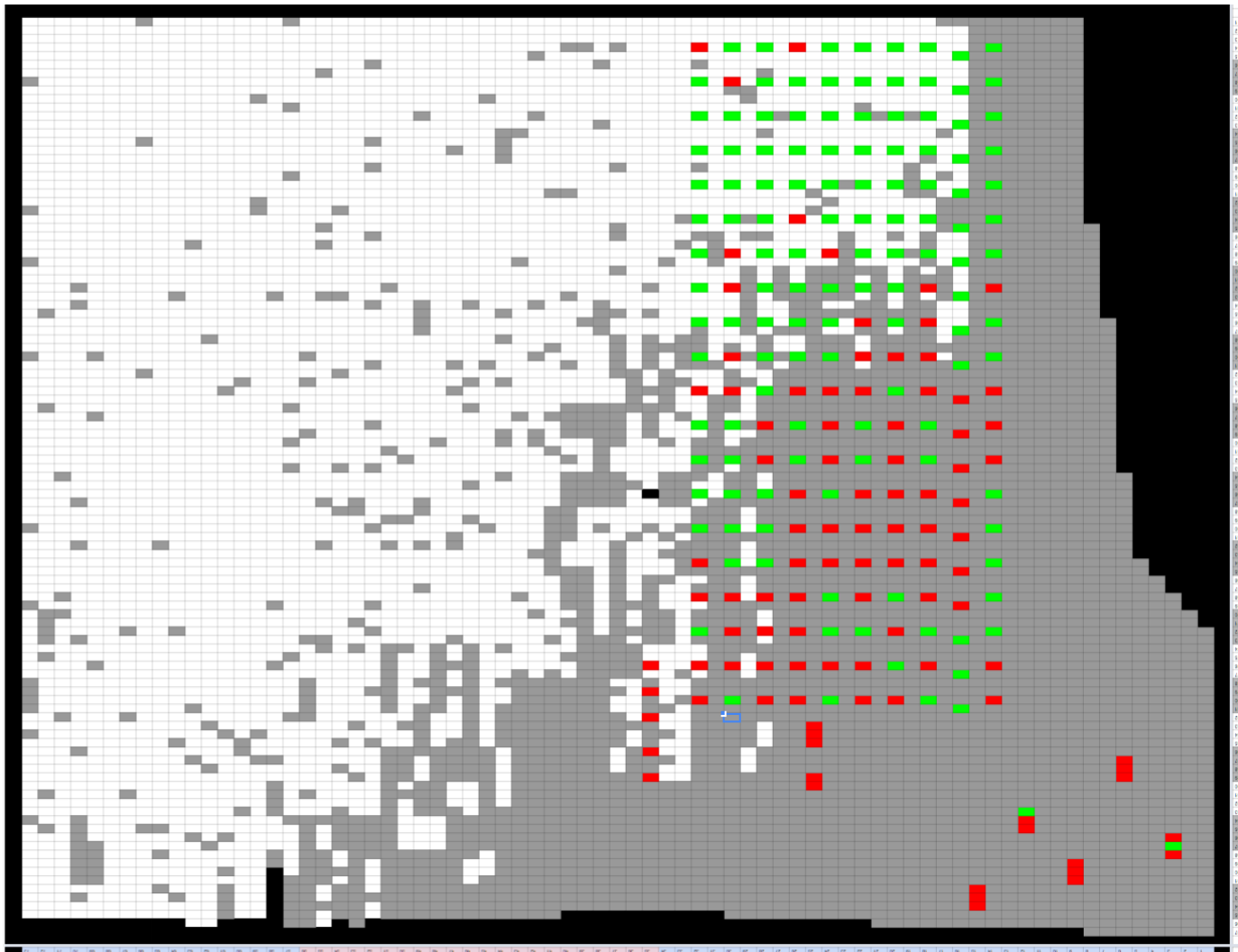
# Vineyard #2 Lower block – 2016

No replanting, no roguing

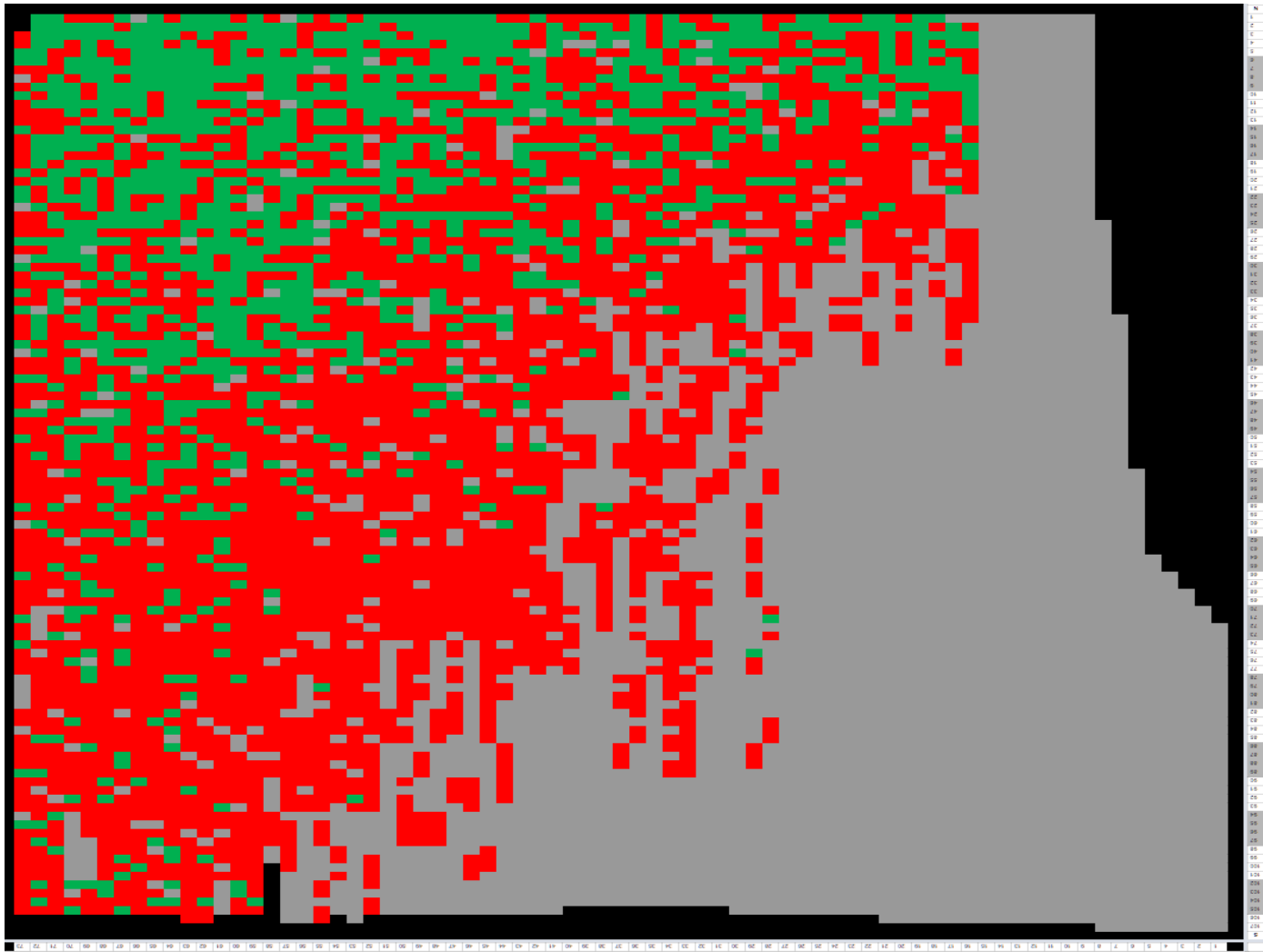




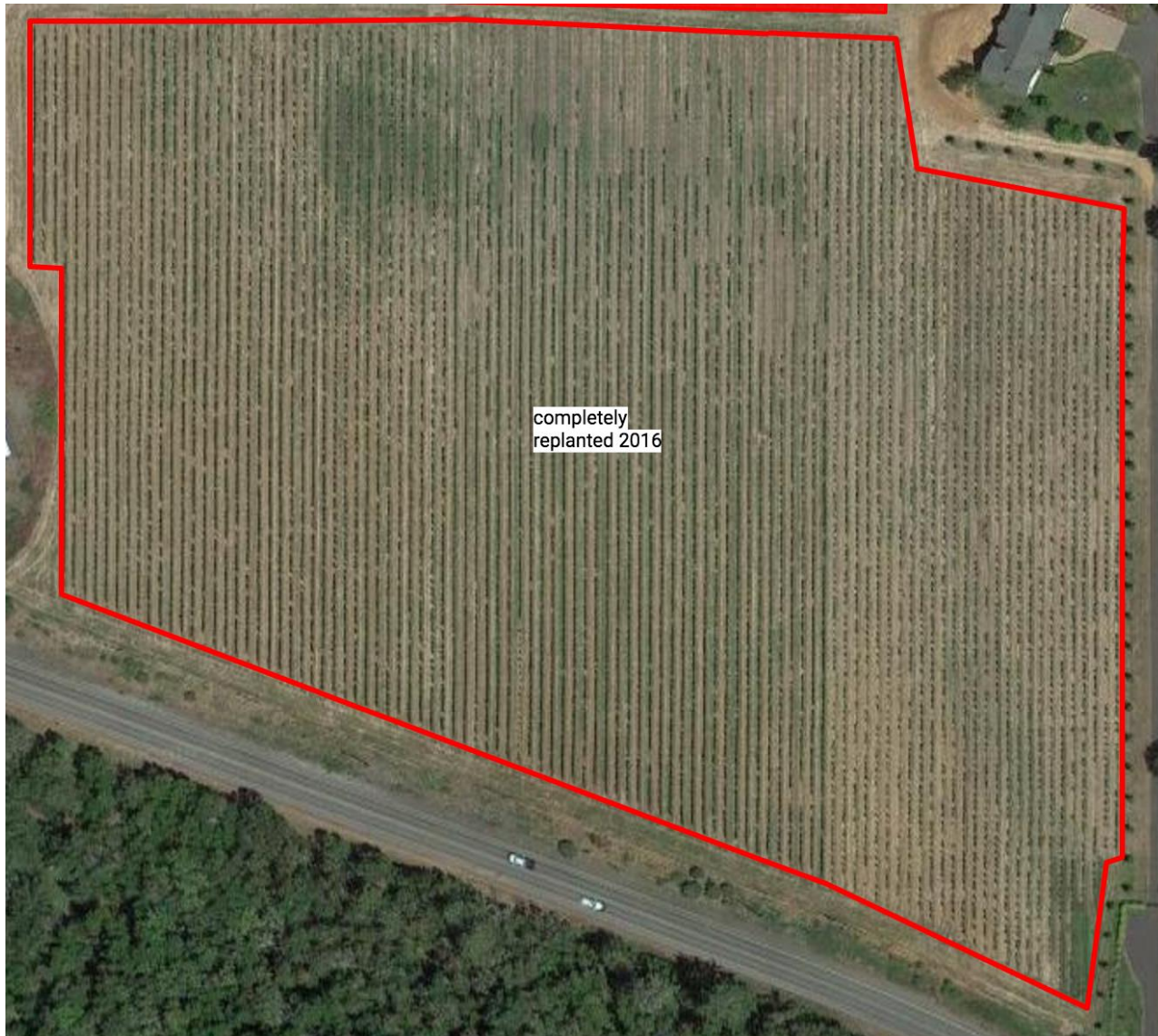
# Vineyard #2 Lower block – 2015



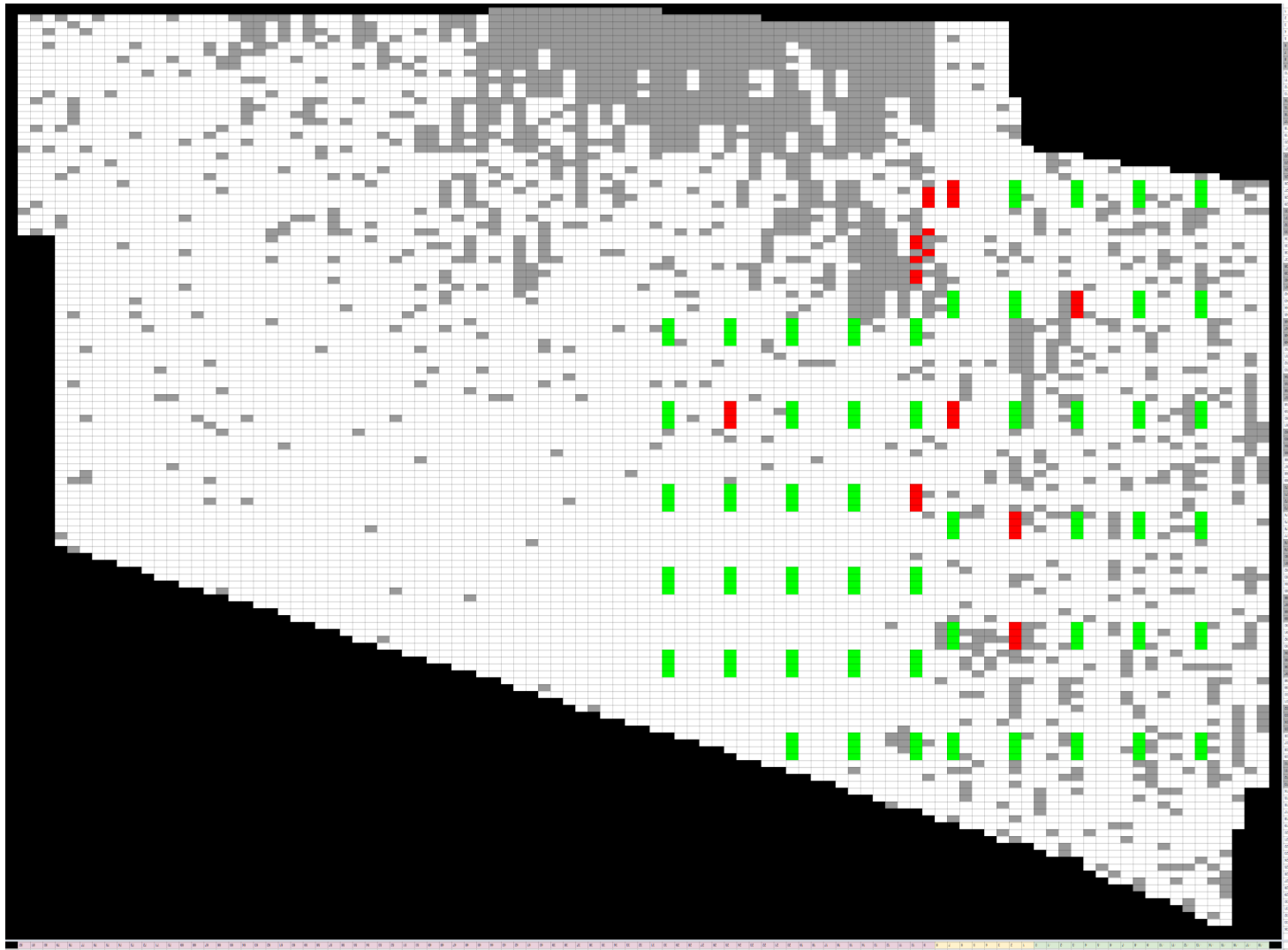
# Vineyard #2 Lower block - 2016



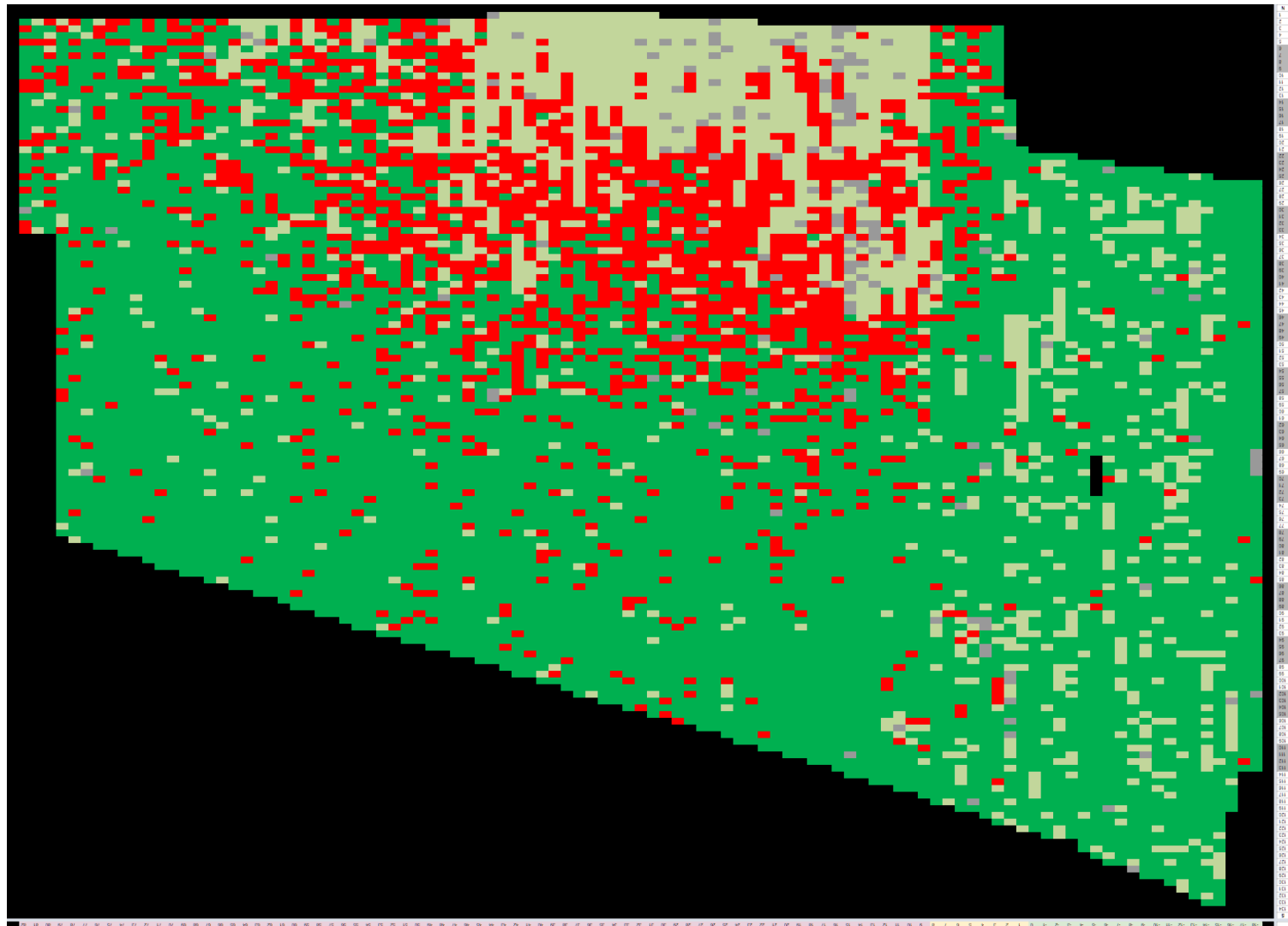
# Vineyard #2 Upper block - 2016



# Vineyard #2 Upper block - 2015



# Vineyard #2 Upper block - 2016





2017

# Advice to growers

- Buy clean plants. **Certified ≠ clean**
- Walk your vineyard, from bud-break through senescence, mark plants, create maps
- If you suspect RB; test and look for **patterns**
- **PATTERNS MEAN SPREAD!**
- If you have RB; talk to extension and other growers to develop a plan
- Think of viral plants as a reservoir
- Approach replanting thoughtfully and with caution

# Questions

- Latency
- White grapes?!?
- Pre-cursors
- Best practices for roguing/replanting
- Vector management
- Impact on general phenology
- Impact on wine quality

# Thank you

Many thanks to Bob Martin and my fellow panelists. Thanks also to Michael, Don and Traute Moore from Quail Run Vineyards, Leigh Bartholomew from RP, Geoff Hall from Ste. Michelle, the SOREC entomology team – Rick Hilton, Andy Swan, Lora Stamper, Vaughn Walton and Danny Dalton at OSU, Marc Fuchs at Cornell, Jason Cole and Randy Gold at Pacific Crest Vineyard Services and my beautiful wife Robyn.

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