

TIMELY TRUNK RENEWAL

A NEW PROTOCOL TO HELP
PROTECT GRAPEVINES FROM
TRUNK DISEASE, AND TO
RESTORE HEALTH

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Grapevine Trunk Diseases

GTD

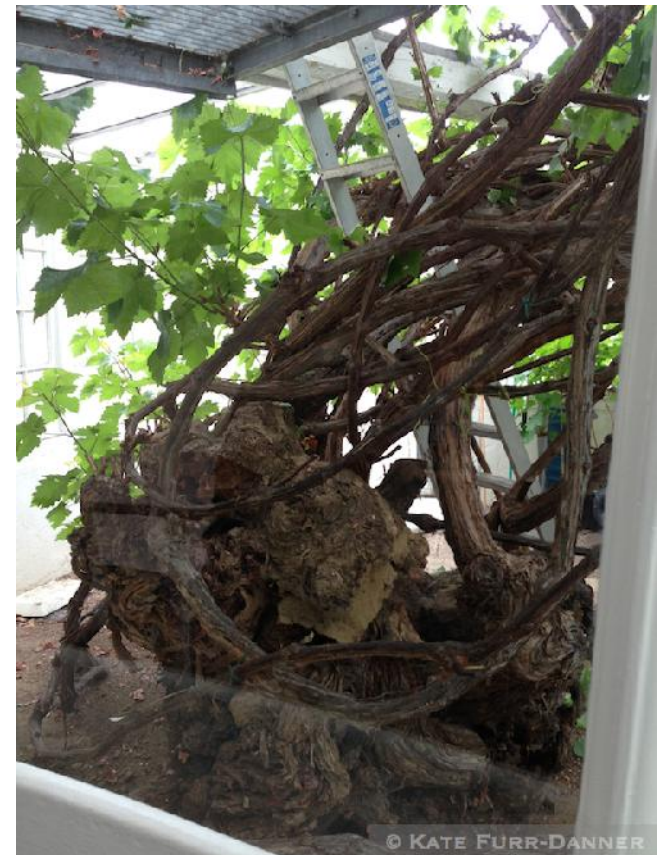
- Caused by several fungi, normally endophytes, but become pathogenic with plant stress
- Eutypa, Botryosphaeria, Petri disease, Measles CA/Esca Europe, Black foot





Plants can live much longer than animals, including humans

Hampton Court vine, planted 1769
247 years ago

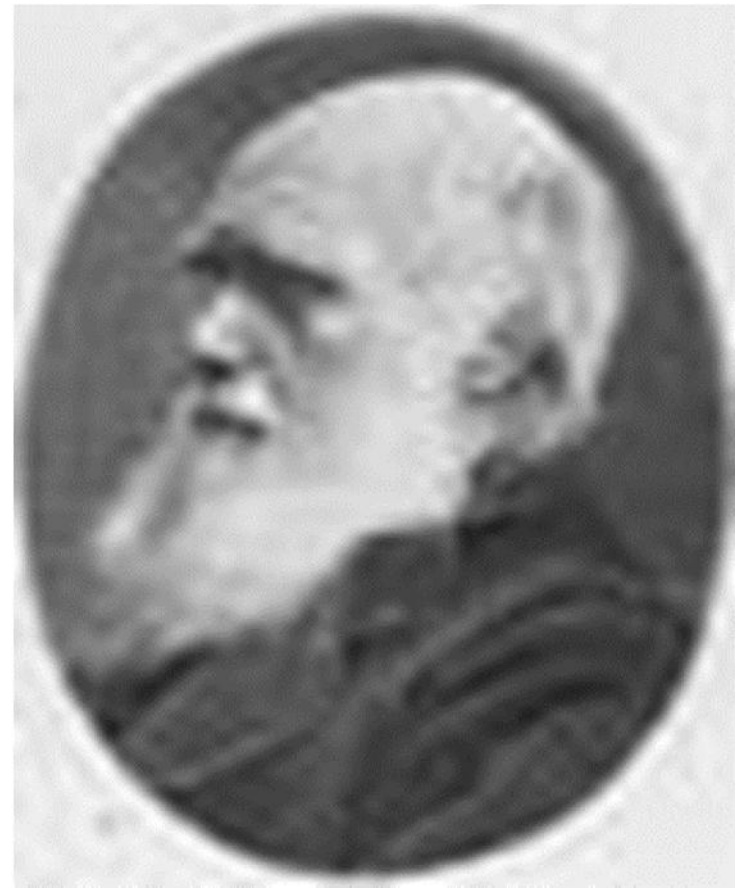


There is a big difference
between perennial plants like
vines and animals. Plants can
**rejuvenate organs, animals
cannot**



Are grape growers nowadays concerned with **phylloxera**?

- No, there is no need.
- We can use phylloxera-tolerant rootstocks, since about 1880.



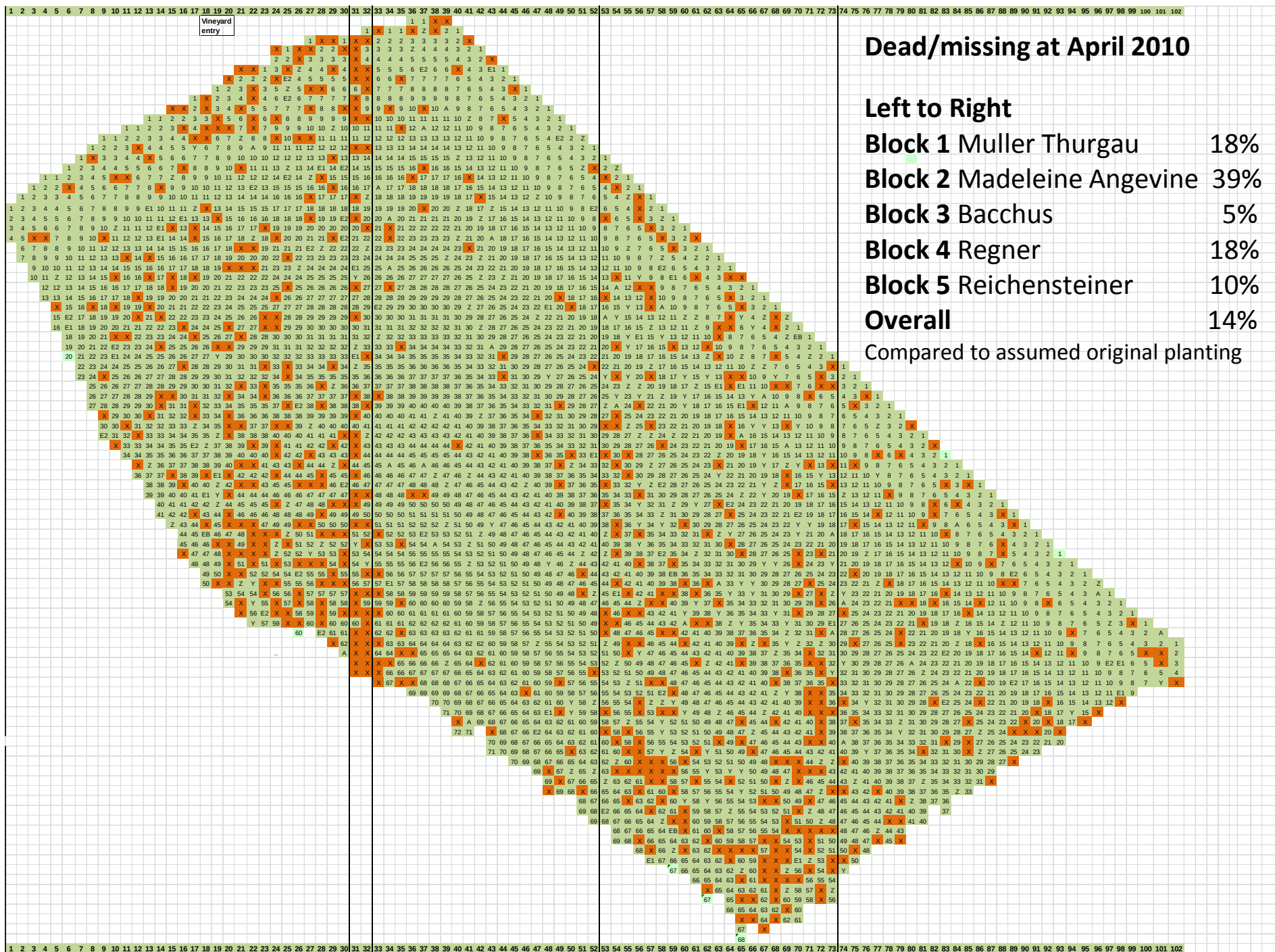
Are grape growers nowadays
concerned with **Grapevine**
Trunk Diseases GTD

They should be!!

GTD disease in vineyards is comparable
to (but different from) **cancer** in humans

GTD are insidious and spreads within the
vine reducing health. Infection can
spread to other plants

Early detection and treatment is
desirable



Dead/missing at April 2010

Left to Right

Block 1 Muller Thurgau 18%

Block 2 Madeleine Angevine 39%

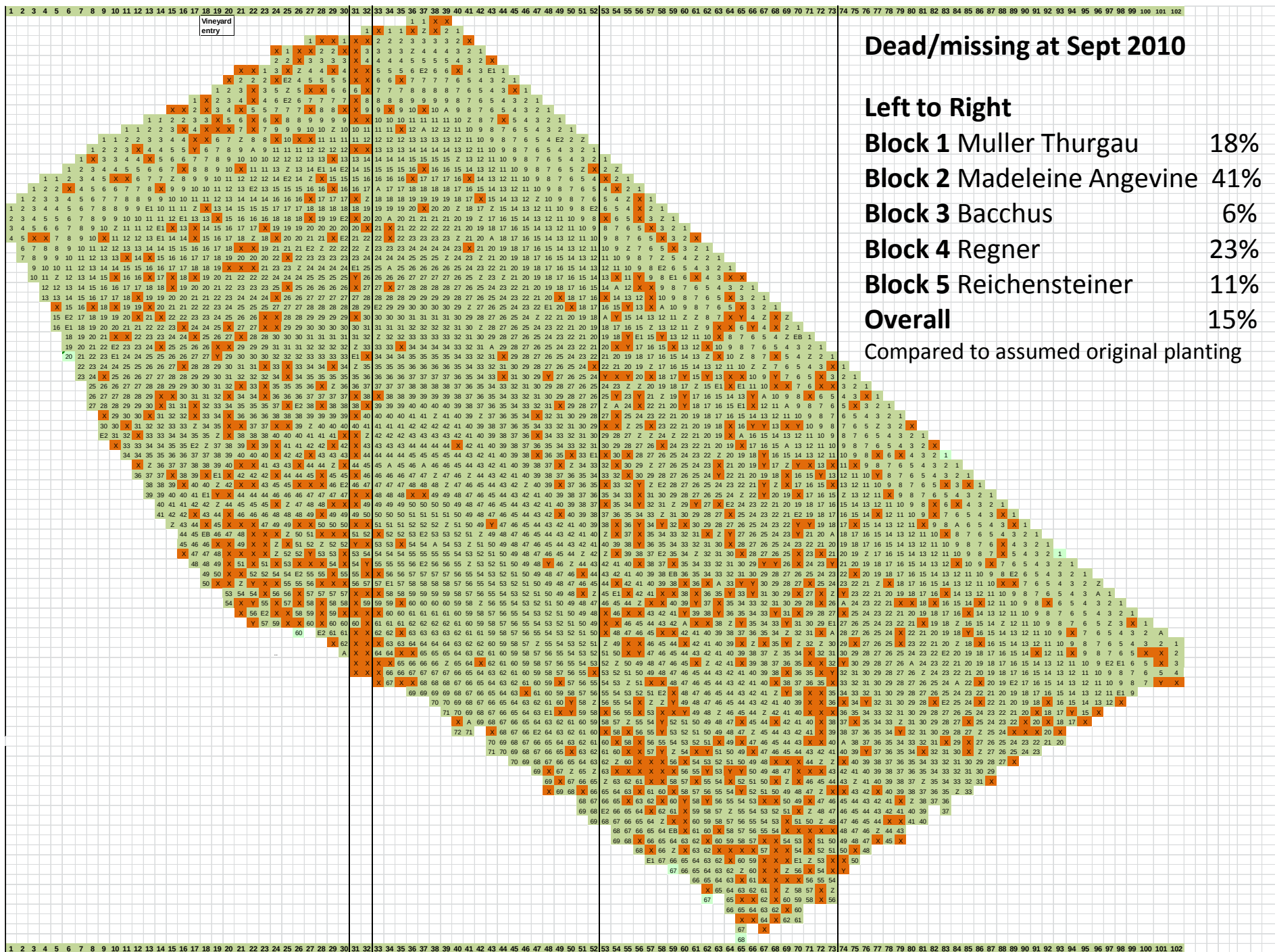
Block 3 Bacchus 5%

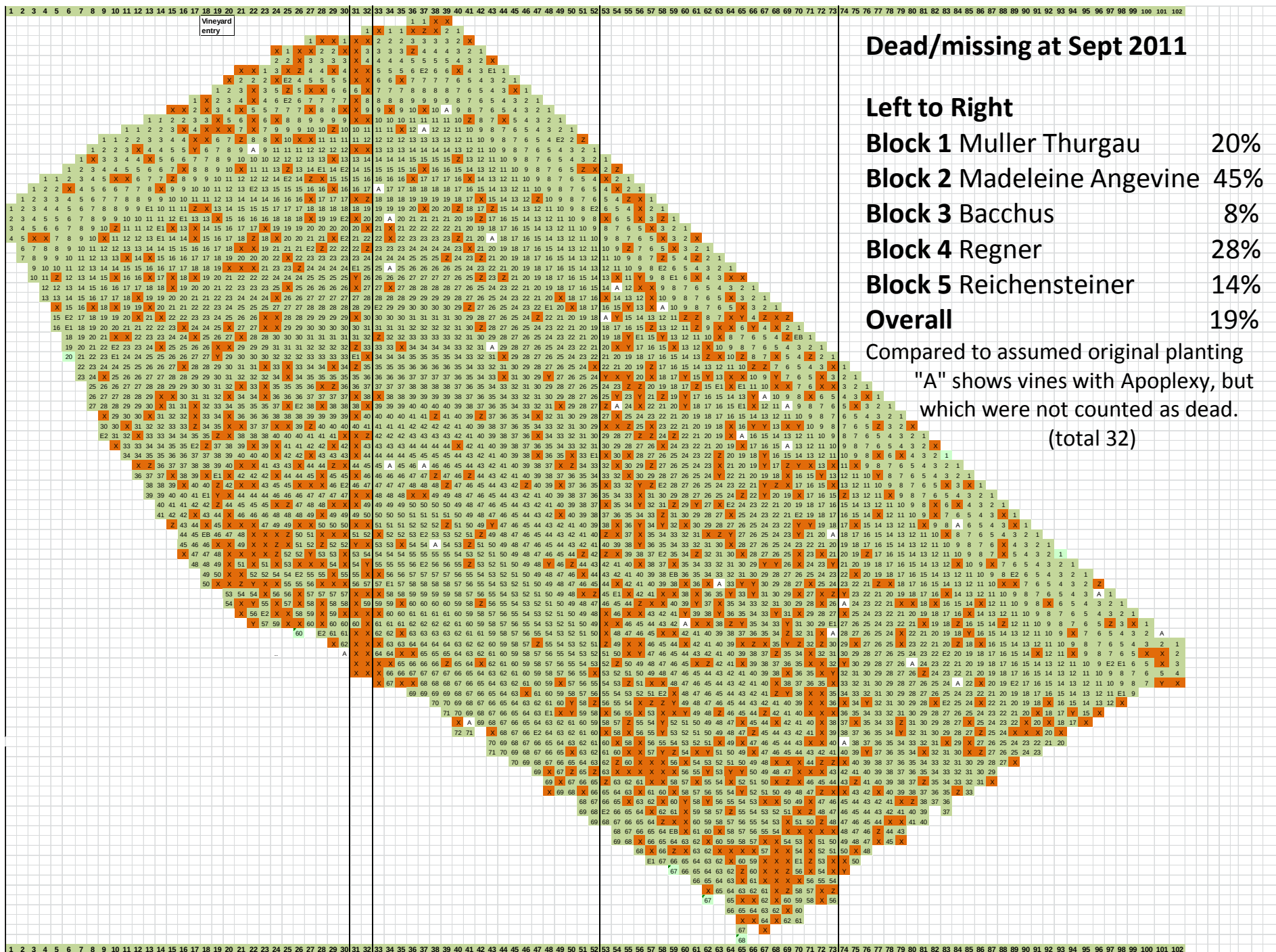
Block 4 Regner 18%

Block 5 Reichensteiner 10%

Overall 14%

Compared to assumed original planting





Dead/missing at Sept 2011

Left to Right

Block 1 Muller Thurgau 20%

Block 2 Madeleine Angevine 45%

Block 3 Bacchus 8%

Block 4 Regner 28%

Block 5 Reichensteiner 14%

Overall 19%

Compared to assumed original planting

"A" shows vines with Apoplexy, but
which were not counted as dead.

(total 32)

One solution (the best?) is the
protocol

TIMELY TRUNK RENEWAL

- Based on rejuvenation of trunk / cordons
- Cheap, simple and effective
- Can rejuvenate vines with symptoms
- Can reduce the spread of infection

Aim of the Protocol

TIMELY TRUNK RENEWAL ***TTR***

Empowers growers to introduce a system to limit GTD impact:

- ✓ Restore the health of infected plants
- ✓ Maximize production of infected vineyards
- ✓ Reduce new infections
- ✓ Is applicable to a wide range of vineyard situations ie. age, variety, degree of infection

In some regions is very important



Photo Taken by Julián Palacios in Eauze (Bas Armagnac) – December 2014

Mechanical pruning in Australia



TTR depends on replacing an infected trunk with a new healthy one

- ✓ Water shoots (suckers) are old basal buds, in the bark.
- ✓ It is desirable to select them low on the trunk, say 6" below stain in the trunk due to GTD



TRUNK RENEWAL is not new

For around
40-60 M years
Grapevines
have grown
with no
pruning and
multiple
trunks



Vines with multiple trunks are seen in forests of America



- One trunk per plant is a recent custom.....

Here are vines with multiple trunks in ancient Egypt



Many vines have multiple trunks
in regions with freezing winters



Concord vineyard, multiple trunks, NY

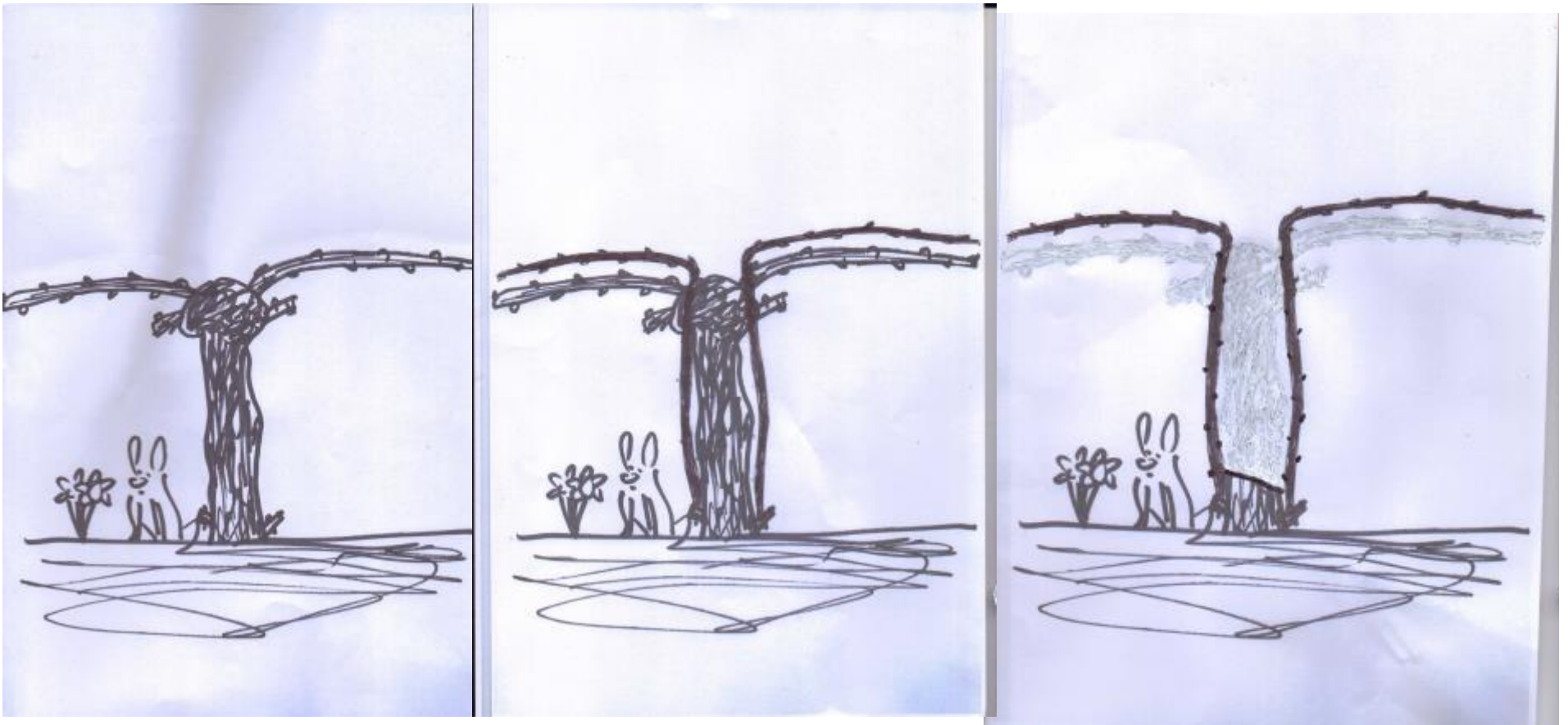
Problems in Trunk Disease Control

- ✓ Infection can occur several years before symptoms show.
- ✓ As vineyards age they accumulate pruning wounds and maybe infections.
- ✓ Not all diseases show foliar symptoms. There are differences between varieties in susceptibility, and symptoms.

When is the right time to initiate Timely Trunk Renewal? At first symptom or death.

How to do trunk renewal

In one or two years, with no loss of yield



How to perform TTR?

-
- Evaluate the degree of infection in spring and pre-harvest:
- Mark/record Dead plants (D), Missing (M), Symptomatic (S)
- Check root system health
- Evaluate GTD RISK, depending on variety, age, pruning/training system, other diseases or stresses

I suggest that you use this sensor, it is better than a drone



- ✓ 3D Vision
- ✓ High capacity storage 1-10TB
- ✓ Connected to RAM
- ✓ Spatial recognition
- ✓ Location included (GPS)
- ✓ Direct communication
- ✓ Requires elementary training and transport

Action plan TTR

	LOW INFECTION < 2 %	MEDIUM INFECTION 2-10 %	HIGH INFECTION > 10 %
LOW RISK	1	2	3
MEDIUM RISK	2	3	3
HIGH RISK	2	3	4

1. Remove dead plants. Train suckers for all sick plants
2. Inspect and mark all symptomatic plants. Begin trunk renewal for these and adjacent plants.
3. Prepare all vines for trunk renewal over several years
4. Remove all trunks, or remove all vines.

Trunk renewal depends on suckers and sanitation

If there are no suckers...

- Prune severely in winter. Remove trunk above stain at flowering

Protect pruning wounds with approved fungicide/treatment

Painting is best

Remove and burn downwind old wood and prunings.



UGNI BLANC, COGNAC. FRANCE



M. Bernard Laurichesse, Verrières.
Vees. rr.

TEMPRANILLO, RIBERA DEL DUERO. SPAIN



PINOT NOIR, U K



Me gustaría que fueran mi recambio para el Siglo XXI



CONCLUSIONS

- GTD impact can be reduced with TTR.
- We can again have “Old Vines”
- Growers can be “empowered” to restore health and productivity.
- Ongoing monitoring is necessary and sanitation.
- Economic studies are desirable for TTR
- The “Elephant in the Room” is world-wide nurseries producing GTD infected plants.

Thanks
for your
attention
!!!

