Thank you Marian and Kevin for the invitation to join you this evening.

About myself: I lived in the Finger Lakes Region for most of my adult life. During that time, I enjoyed watching the growth of our local wine industry as it evolved from rustic beginnings into the world-class wine region we know today.

After a 30-year career in sales, marketing, and operations management in the high-tech world I took a leap in a new direction and completed an MBA in Sustainability at Antioch University New England.

After graduation I consulted with Cornell University’s New York State Agricultural Experiment Station to help create a Sustainable Best Practices development program for the Finger Lakes wine industry. During this project I met Shannon and Paul Brock, and found that their Silver Thread Vineyard is a clear example of a winery focused on sustainability.

When the opportunity came around to join the team at Silver Thread, to get to know the industry from the inside point of view, I did not hesitate.

I am looking forward to a continuous hands-on education, and expect that in another 60
years I will be a master winemaker.
Consumers are increasing seeking out sustainable/green. *From soap to light bulbs to cars* Green/Natural/Sustainable/Earth-friendly/Organic

Confusion among both producers and consumers. *What do these terms mean? Something the market seems to want - but what?*

*Is it financially practical to produce green products and services? Will customers pay a premium for sustainably produced products? Is this all just a fad? Are green producers really doing something different or is this just a marketing ploy – just greenwashing? And does this have to do with wine making? Isn’t wine natural anyway?*

*And what’s this Greenwashing?*
Just because you say you are green – or natural, or organic or ah, beyond petroleum, doesn’t mean you really are these things. Face it marketing can lie. Oh, sorry did I say that out loud?
The problem is that “sustainability” is sort of a sponge word; it soaks up all kinds of meanings. Without a clear definition it begins to mean whatever the user of the word considers good or desirable. This can lead to the confusion we are seeing in the marketplace. And a lack of definition can leave the door open to for the less-than-honest greenwashing mentioned above.
Some Definitions for “Sustainability”

- **Bruntland Commission**
  - 1987 – United Nations World Commission on Environment and Sustainability
  - “... development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”
  - Thriving in the present without robbed the future.

**Bruntland Commission**

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“... development that meets the needs of the present without
compromising the ability of future generations to meet their own needs.”

Thriving in the present without robbing the future.
Some Definitions for “Sustainability”

• John Elkington 1998 – “Cannibals With Forks”
  • Put sustainability into a business context
  • Triple Bottom Line.
  • People-Planet-Profit
  • Environmentally Sound – Economically Feasible – Socially Equitable

Elkington: A sustainable enterprise must consider its impact on the social and natural environments in which it operates in addition to its quarterly financial results.
Bruntland and Elkingon approaches work well together. Bruntland focuses on the stewardship of common pool resources for future generations.

This meshes with the TPL definition as long as we keep in mind that “thriving in the present’ part of the equation.

In short, sustainability must first be sound business practice. If it is not, neither societal nor environmental concerns can be well served.

If sustainability planning is approached strategically, as part of the deep structure of an organization, rather than as an afterthought,, all three aspects of the TPL will be enhanced.
The Wine Industry and the Triple Bottom Line

What could be more environmentally friendly than a winery?

In the popular conception, the image of a winery includes acres of manicured and lush vineyards, surrounding an old ivy-covered stone chateau, a bright blue sky, clean air, and maybe a sparkling lake or river in the distance.

But hidden from view there is often far greater environmental, social, and economic impact than the image would suggest.
Production Inputs and Outputs

As Ecological Economist Herman Daly (2010) reminds us -

• In any production process, the *inputs* are materials and energy ultimately provided by the natural environment.

• And the *outputs* are the intended products, along with waste material and waste energy – these are eventually released back into the natural environment.

• *This is unavoidable and the winemaking process is no exception.*

In any production process, the *inputs* are materials and energy ultimately provided by the natural environment.
And the *outputs* are the intended products, along with waste material and waste energy – these are eventually released back into the natural environment.
*This is unavoidable and the winemaking process is no exception.*

*All we can do is seek to minimize the impact by reducing excess resource use, mitigating the effects of produced waste, and where possible reusing output waste energy and material as inputs to other production processes.*
Winery Inputs and Outputs

Please cover your left eye and read the second line.

And then consider these bits of information.
50% of this is irrigation – with attendant runoff to surface water and aquifers

Of the remaining 50%, 70% emerges as waste water from cleaning of tanks, pumps and other equipment. This varies seasonally, peaks in the Fall at harvest/crush season’

The waste water has a high sugar content: BOD of 5000 to 20,000 ppm. High sodium content from NaOH used in cleaning solutions. Damage to soils from Na++ ions.

This output must be treated or otherwise mitigated.
Depending on the energy source this works out to the equivalent of 0.41 to 1.6 kg of carbon released into the atmosphere per 750 ml bottle. Add to that an estimated 0.6 kg of carbon released per glass bottle produced. Depending on where you put the boundaries of the system and how the electricity is generated your bottle of wine represents 0.6 kg to 2.2 kg of greenhouse gas emissions.
Other GHG outputs: from farm machinery, from petrochemicals used in producing conventional fertilizers and pesticides.

Yes, even composting and mulching releases some GHG, but this is mostly very short cycle carbon – sequestered the previous year. Same goes for the CO2 released by fermentation.
But can’t we just focus on Return on Investment?

What, Me Worry?

Sez the CFO. None of these externalities show up on our balance sheet anyway.

So why should we be concerned about sustainability? What are the drivers?
Sustainability Drivers in the Wine Industry

First and foremost:
Without a healthy environment and economy, there would be no wine industry.

• Pure water
• Enriched soils
• And <ahem> a stable climate

Quite simply – we need the ecosystem to provide the materials needed. But wait there’s more!
Sustainability Drivers in the Wine Industry

Remember the consumer?
• The Finger Lakes is home to large population of LOHAS Consumers. What’s that?
• Lifestyles of Health and Sustainability
  • Specifically looking for “Green” products
  • Wary of greenwashing
  • And the have the discretionary funds to spend on wine.

LOHAS – they want green, and they have the green.
Sustainability Drivers in the Wine Industry

Regulatory Pressure

• Pollution control
• Carbon limits
• Pays to be ahead of the curve
Sustainability Drivers in the Wine Industry

• Sustainability is directly related to Quality Control

Classic Deming Cycle – Plan Do Check Act. A continuous cycle focused on environmental/social/economic impacts maps closely to the Deming Cycle’s focus on continuous improvement in operational efficiency and product quality.

Improvements in operational efficiency and economic efficiency are associated with lower resource use and lowered waste production

And that has a direct positive effect on the financial bottom line. And the CFO is happy once again.
How do we get there from here?

- How do we encourage sustainable best practices in the vineyards and the winery?

These efforts date back. OK not that far back but as early as 1992 the ideas of sustainable best vineyard practices were introduced in Lodi, California.

By 2005 the first few Northern California wineries were certified as sustainable under the standards codified in the California Code of Sustainable Wine Growing Practices.

These efforts were followed closely by similar programs in New Zealand, South Africa, France, Australia, and Canada. And in the US, by Oregon, Washington State, and New York State.

Most focused on the vineyard, but some also included winery water and energy usage and associated waste production as well.
New York State’s VineBalance Program

• 2006 – New York Guide to Sustainable Viticulture Practices
  • Grower Self-Assessment Workbook


New York has no formal program for the Winery Sustainability (as opposed to Vineyard Sustainability.)

But there is continuing to be considerable interest in such a program – possibly leading to a certification seal to put on wine labels.

With 130 wineries in the FLX alone, it’s a slow process. Herding cats....
I just happen to work at a sustainable winery...
Silver Thread Vineyard

- Earth-bermed building. Minimizes heating and cooling needs

HVAC is single air-source heat pump
Silver Thread Vineyard

- 28 kW Photovoltaic System

Installed in 2015. Year by year averages more energy generation than we consume.
Silver Thread Vineyard

- Packaging
  - Bottles – EcoBottle 30% lighter weight than standard wine bottles
  - Closures – technical cork formed from natural ground cork.

The bottles and the corks are, naturally, fully recyclable
Aside from the solar electricity used to power our two buildings, we have two small tractors that use diesel fuel. We buy diesel that is a blend of traditional diesel and biodiesel.

The greatest environmental impact of wine is its transportation from winery to market. When customers purchase wine from local producers it greatly minimizes its carbon footprint. Most of our wine is sold from the tasting room. The remainder is distributed to stores and restaurants in the Northeastern U.S. When we ship wine to consumers via UPS, we purchase carbon offsets to mitigate the impact of shipping. Therefore, our carbon footprint is much smaller than the average winery.
Silver Thread Vineyard

• Waste Stream. We compost, re-use, or recycle virtually everything.
  • Solid waste from the vineyard and the winery process is composted and used as organic fertilizer. Includes pomace (seeds, stems, skins) and lees (spent yeast.)
  • Cardboard, cork, glass are all carefully recycled.
  • A Zero-waste Winery

A zero-waste facility.
Silver Thread Vineyard

• Community Service and the Human Element
  • The People part of People-Planet-Profit
  • Silver Thread is a living wage employer
  • A respectful and collegial workplace
  • Paid educational opportunities
  • Support of numerous community organizations – to name a few:
    • Lodi Food Pantry
    • Finger Lakes Community College
    • Cornell Club Scholarship Fund
    • Rochester Museum and Science Center

People part of the TBL
AEM is a voluntary, incentive-based program that helps farmers operate environmentally sound and economically viable businesses. Administered by the NYS Soil & Water Conservation Committee, AEM is focused on minimizing runoff, conserving soil and protecting drinking water. Silver Thread qualified for participation in AEM through its use of the following best practices:

Soil Management: improving soil organic matter with mulching
Pesticide Use: utilization of Integrated Pest Management practices by a certified applicator
Pesticide Storage, Mixing and Loading: state-of-the-art spray shed for storage and mixing of vineyard applications
Silver Thread Vineyard

- Bio-intensive Agriculture – Holistic Systems Approach
  - Soil Health
    - Organic Fertilizer
    - Mulch Hay
    - Composts
    - Biochar
    - Careful monitoring of microbial ecology.
    - Minimal tractor use to avoid soil compaction
  - Vine Health
    - Microbial and herb extract sprays

We don’t treat our soil like dirt.
Silver Thread Vineyard

- Bio-intensive Agriculture – Holistic Systems Approach
- Weed control.

Cover crop under vines – no herbicide – no glyphosate. No tillage. Less tractor traffic. It’s like a jungle out there – healthy crop of mice and a resident pair of Bald Eagles.
Silver Thread Vineyard

• Bio-intensive Agriculture – Holistic Systems Approach
  • Insect Control

We strive for 100% organic insect control. Including hand picking bugs if needed. We tolerate a varied population and the only really serious insect issue is Grape Berry Moth. For this we use a targeted biologic – a fungus that doesn’t hurt the grapes, but does infect the moth larvae.
This is the tough one, and it’s the reason that fully organic and biodynamic wineries have failed in the Finger Lakes. We have a damp (read: wet) environment which means that there is always fungal diseases present.

Standard Organic is not a good first line of defense. It usually involves copper and sulfur which accumulates in the soil over time and essentially kills the soil ecosystem.

Our approach: first resiliency. Healthy vines are less liable to fungal disease

Second – we use physical methods: leaf pulling and canopy management techniques to increase airflow and sunlight exposure. We also use netting to deter our winged friends. They take single pecks at each grape and live the grape susceptible to infection.

Third – if we must spray we use a biologic fungicide to change the microflora balance – like probiotics...

Next – if that fails we will sparingly use the copper and sulfur based organics sprays

Finally – as a last resort we will use carefully selected commercial fungicides. But only as a last resort, and only using highly targeted and biodegradable products.
Silver Thread Vineyard

• Bio-intensive Agriculture – Holistic Systems Approach
  • So are we Organic? Biodynamic?
  • We use elements of both approaches as appropriate for our region
  • We combine solid science with holistic techniques.
• And in the soggy 2018 harvest season, the increased resilience of our bio-intensive vines had better results than the nearby standard commercial farmed vineyard blocks.
Q and A?

Thanks All...
Grab your IDs and join me for a tasting!

• We are pouring 2017 Silver Thread Good Earth Cabernet Franc and 2017 Silver Thread STV Estate Riesling.