

Growing Riesling Sustainably in Germany

A seminar for Wineries Unlimited

March 13, 2006



Defining “sustainable”

Oxford English Reference Dictionary:

“Able to be maintained at a particular level without causing damage to the environment or depletion of the resource.”

The Sustainable Agriculture Network:

“Sustainable agriculture is farming that is economically viable, environmentally sound and socially equitable.”

The Oxford Companion to Wine:

“A form of viticultural practice which aims to avoid any environmental degradation.”

A brief history of viticulture in Germany

- Vineyards have been cultivated since the Roman era (ca. 100 AD).
- Riesling was first documented in 1435.
- Vineyard area in the 15th century was four times what it is today.
- Thirty Years War (1618–1648) devastated vineyards and population.
- Phylloxera caused a fundamental shift in European viticulture.
- Synthetic agrochemicals led to significant environmental problems.
- Export markets collapsed again in mid-1980s due to low quality.
- Improved, sustainable practices have emerged since the 1980s:
 - Strict governmental control of pesticides and herbicides.
 - Restricted use of fertilizers and sprays
 - Soil analysis required every three years
 - Irrigation was prohibited to restrict yields (it is now allowed).
 - Greater use of cover crops to enhance soil health.
 - Emphasis on reducing negative effects of vineyard monoculture.

Organic and biodynamic in Germany

- Only 1.3% of vineyard area is certified organic – 3,500 acres out of 250,000 acres total vineyard area.
- Very few biodynamic vineyards in Germany – less than 250 acres.
- Vineyard fragmentation, especially in the steep vineyards of the Mosel, make certified organic and biodynamic difficult to achieve.
- Organic practices are concerned primarily with limiting chemical applications and maintaining soil health.
- Biodynamic is a more cosmic approach that goes beyond organic with a metaphysical belief system developed in 1920s by Rudolf Steiner.
- Sustainable agriculture builds on organic principles to encourage ecological diversity, enhance soil fertility and reduce the use of agrochemicals.

Comparing regions – Mosel & Pfalz



Dr. Loosen (Mosel)

- Very steep vineyards
- Vineyard work done by hand
- Slate and volcanic soils
- Cool, wet climate
- Only Riesling



J.L. Wolf (Pfalz)

- Flat vineyards
- Vineyard work mechanized
- Sandstone and limestone soils
- Warm, dry climate
- Riesling and Pinot varieties

Vineyard work: December – January



Dr. Loosen (Mosel)

- Pruning – cuttings must be mulched by hand
- Repair stakes and wires
- Tie canes
- Apply organic compost (applied by hand)



J.L. Wolf (Pfalz)

- Pruning – cuttings are mulched by tractor
- Repair stakes and wires
- Tie canes
- Apply organic compost (applied by tractor)

Vineyard work: February – May

Dr. Loosen (Mosel)

- Spread chalk to raise soil pH
- Apply organic fertilizer (applied by hand)
- Set pheromone traps for grape berry moth
- Replace dead vines from cuttings of oldest, ungrafted Riesling vines (April – May)

J.L. Wolf (Pfalz)

- Spread chalk to raise soil pH
- Apply organic fertilizer (applied by tractor)
- Set pheromone traps for grape berry moth
- Replace dead vines with Riesling cuttings grafted on American rootstock
- Spread stone powder to improve soil structure
- Apply composted bark dust for mulch and for weed control

Vineyard work: Steep slopes in the Mosel



- Extremely steep slopes are very labor-intensive to replant



- Reorganized vineyards can sometimes be worked by new caterpillar-type tractors

Vineyard work: May



Dr. Loosen (Mosel)

- Soil cultivation, where possible with hand-held cultivator pulled by tractor winch
- Sulfur spray for oidium and “red burn” when shoots have 3–4 leaves



J.L. Wolf (Pfalz)

- Soil cultivation by tractor – done soon after rain to improve water retention
- Sulfur spray for oidium and “red burn” when shoots have 3–4 leaves

Vineyard work: June – August



Dr. Loosen (Mosel)

- Summer pruning (by hand)
- Spray fungicides for powdery and downy mildew (helicopter)
- Mowing and mulching, where possible
- Herbicide weed control on steepest sites



J.L. Wolf (Pfalz)

- Summer pruning (hedging)
- Spray fungicides for powdery and downy mildew (tractor)
- Mowing and mulching
- Alternate rows cultivated

Vineyard work: August – September



Dr. Loosen (Mosel)

- Canopy management – leaf pulling
- Green harvest after veraison
- Final spraying for mildew (six weeks before harvest begins)
- Spray Eiswein vineyards to prevent botrytis



J.L. Wolf (Pfalz)

- Canopy management – leaf pulling and hedging
- Green harvest after veraison
- Final spraying for mildew (six weeks before harvest begins)
- Remove shoulders from clusters in *grand cru* sites

Vineyard work: October – November



Dr. Loosen (Mosel)

- Harvest by hand – about one acre per day. Entire harvest takes six to eight weeks



J.L. Wolf (Pfalz)

- Harvest by hand – one to two weeks

Conclusions about sustainable viticulture

- Modern sustainable viticulture shares the same goals — and many techniques — with organic and biodynamic viticulture: to reduce the impact of monoculture farming and maintain a healthy ecosystem.
- Economic realities sometimes restrict what can be done. Our most obvious example is weed control in the steepest Mosel vineyards — weeding by hand is extremely expensive and brutal to the workers, so we spray the safest contact weed killer we can find.
- The modern concept of sustainable agriculture incorporates economic and ethical issues for a more balanced approach to viticulture that promotes a healthy environment, respects the workers and the local culture, and ensures that the farmer can survive financially.
- Each wine grower must find what works best for his vineyards and his personal beliefs.

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