Thinking about the future of winemaking.

Ensuring sustainable profitability and financing.



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Mag. Sylvia Petz



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An overview



"You do it because it's the right thing to do."

Rebecca Solnit

- The buzzwords of our time
- What sustainability really means
- Figures, data, and facts
- SDGs and Paris Agreement
- Key levers and opportunities
- Best practices

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The biggest challenges in our future

Click through to the movies

Globalization | Film

Competitive Enterprise Inst.

https://www.youtube.com/watch?v=IYO3tOqDISE&feature=youtu.be

Digitalization | Film

HR Forecast

https://www.youtube.com/watch?v=l0dy6z8uWoU

Climate change | Film

Porto Protocol

https://www.youtube.com/watch?v=4L9IuPX9WGs

Population growth and poverty

Environmental destruction

Wars and political violence

Manipulation of the (social) media

etc.

Challenges in the future = opportunities in the future!



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Climate change: Effects of 1 and 2 degrees warming

The likely effects of climate change

Temperature rise in relation to the pre-industrial period (1850 to 1900)		
Effects on:	**1°C**	**2°C**
Freshwater supply	small Andean glaciers disappear, endangering the water supply of 50 million people	potential reduction in water supply by 20 to 30% in some regions (Southern Africa, the Mediterranean area)
Foodstuffs and agriculture	slight increases in yields in the temperate zone	declining crop yields in tropical regions (from 5 to 10% in Africa)
Health	at least 300,000 people die annually from diseases caused by climate change lower winter mortality in the higher latitudes	40 to 60 million more cases of malaria in Africa
Coastal regions	increasing flooding damage	up to 10 million people affected by flooding
Ecosystems	at least 10% of terrestrial species are threatened with extinction increased risk of bush fires	15 to 40% of all species threatened with extinction

Sources: IPCC, 2007b; Stern, 2007

2019:
~ 1°C
Has already been reached

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The 2 degree target is feasible! With the will and €



€ 60 trillion globally by 2030

€ 5 trillion per year

With conventional technology & energy efficiency (e.g. in power plants)

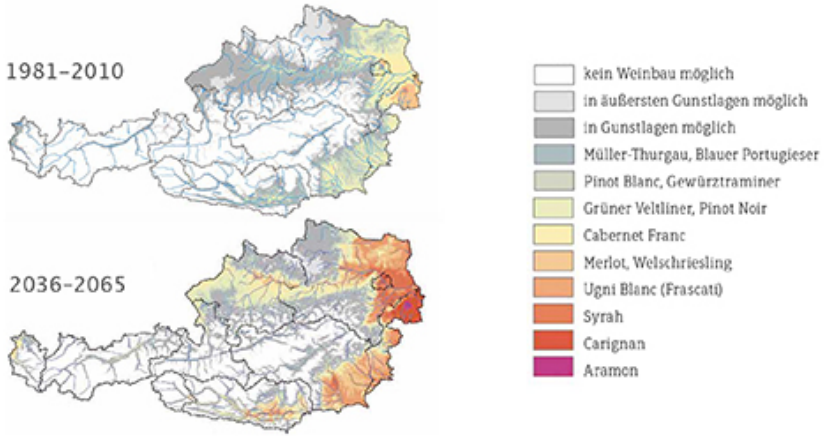
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Climate change

Effects on winemaking

- Premature budding & flowering
- increased frost hazard
- more frequent and severe storms
- eroded soil
- drought stress & sunscald
- new pests and (fungal) diseases
- harvesting at high temperatures
- lower yields
- altered sugar-acid interplay
- altered flavors
- thicker grape skins
- etc





Quelle: Vinaria, 4/2016: Sachstandardsbericht Klimawandel (AAR14)
J. Eitzinger & H. Formayer

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Business models for sustainability

Sustainability is our future – also economically!

BENEFITS for winemakers

- it pays economically
- 80% of consumers see the increasing relevance of sustainable wines (2016: Aus)
- 16% of consumers in Germany are prepared to pay more for sustainable wines (2012: Ger)
- markets in the USA and Scandinavia are demanding organic wines
- rising demand for green events
- can use sustainability for positioning
- fulfillment of climate change targets (SDGs)

VISION

Austria is positioning itself worldwide as a sustainable winemaking nation by 2030

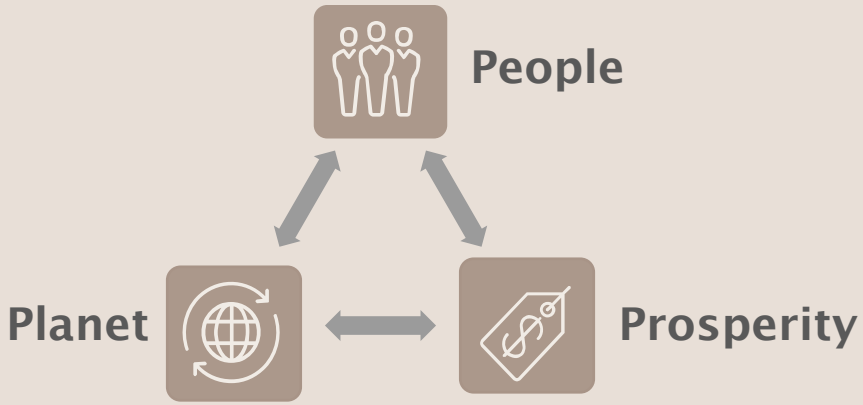


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What sustainability means

Corporate sustainability is not about **what** you do for a living, but **how** you earn my money.

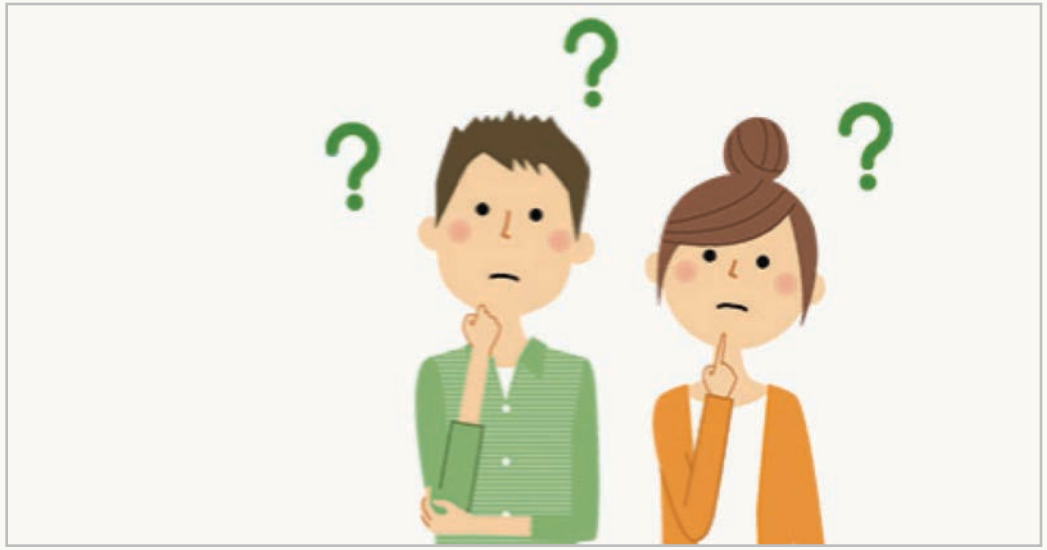
Business in the service of



"What is true corporate sustainability?"

Film from the University of St. Gallen
https://www.youtube.com/watch?v=AEFqUh4PMmI

What contributions should and can companies afford for sustainable development?



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What is the social contribution of wineries?



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More than *just* soil …

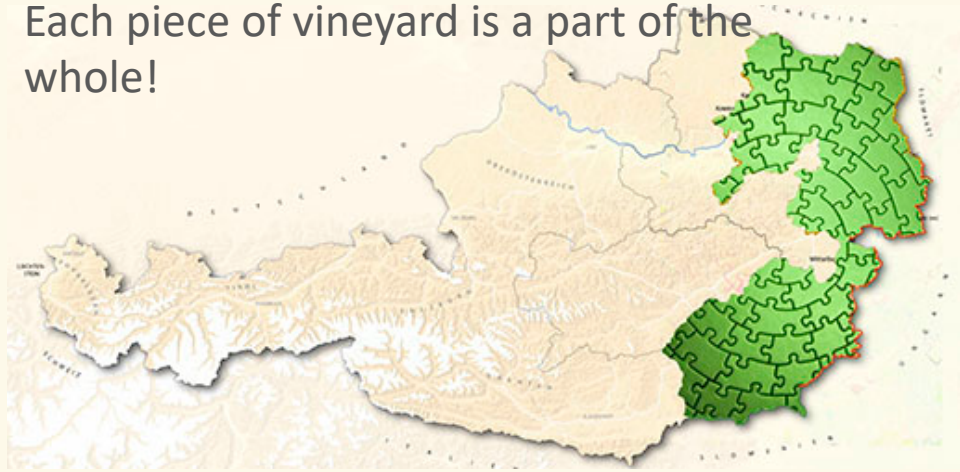
Soil as the linchpin and most important asset of the farmer

Value investment & value enhancement	Basis of high quality wines
Livelihood of the children	Habitat for insects and animals
Oxygen donor	CO_2-sink
Social responsibility	

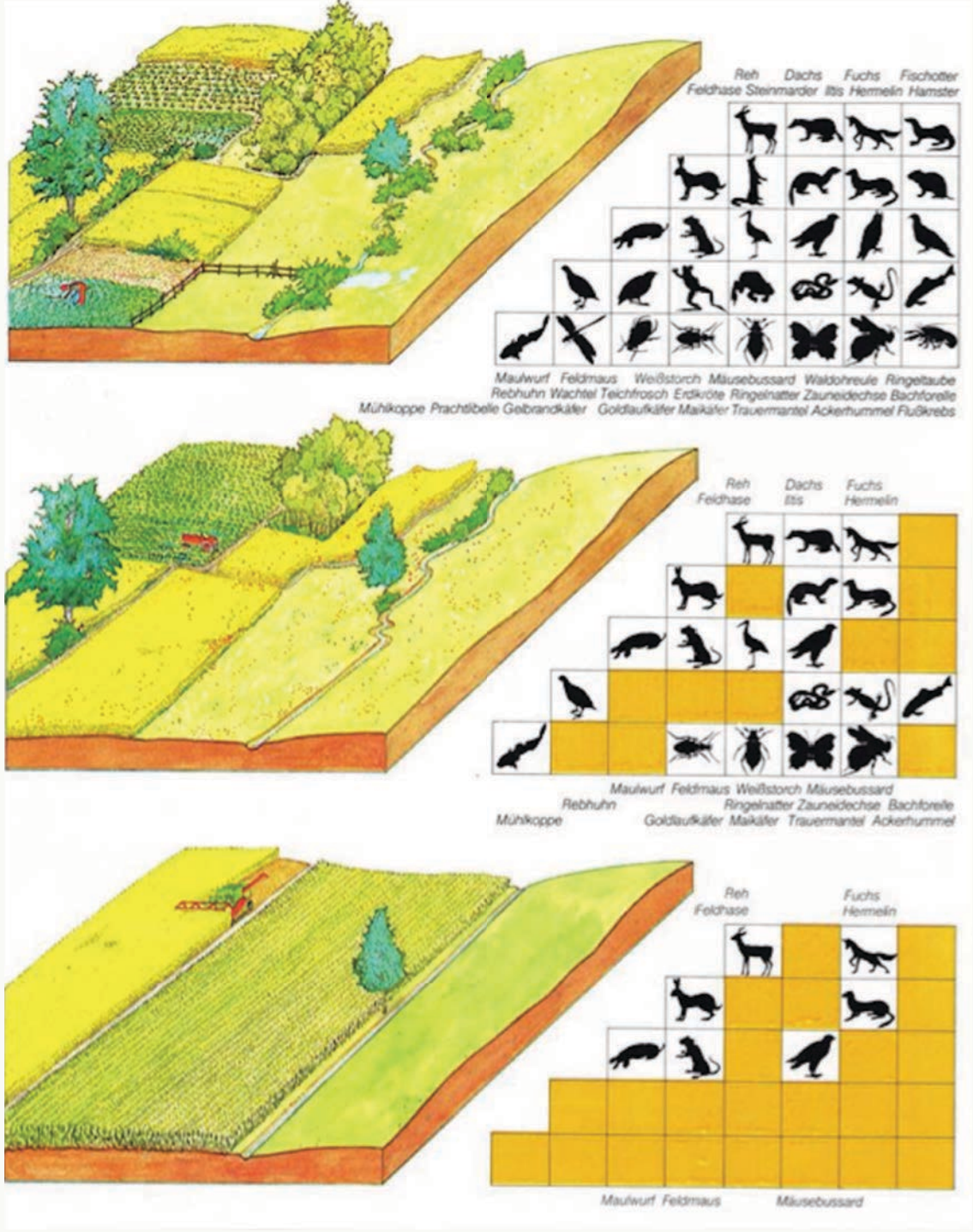
VISION:

CO_2-neutral viticulture on Austria's entire vineyard acreage by 2030

Each piece of vineyard is a part of the whole!



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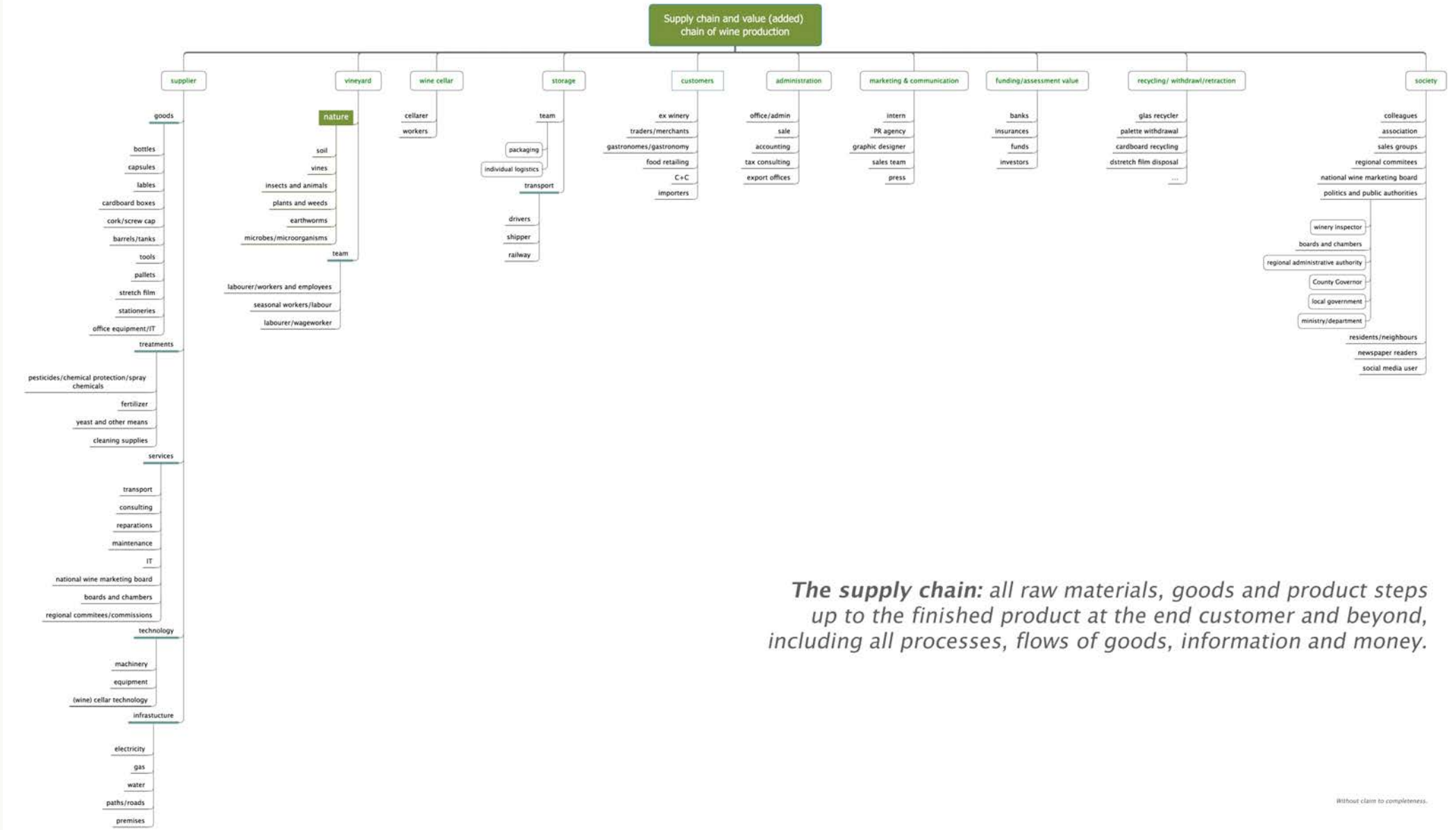
BIODIVERSITY

With the plants also come animals, birds and insects back. In the vineyards, embankments, meadows and fallow land.

Source: Teja Tscharntke, Jason M. Tylianakis, Mark R. Wade, Steve D. Wratten, Janne Bengtsson and David Kleijn: Insect Conservation in Agricultural Landscapes, S. 383 in Stewart, AJA; New, TR; Lewis OT (eds.) Insect Conservation Biology, Proceedings of the Royal Entomological Society's 23rd Symposium, CABI

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In the winemaker‘s sphere of influence – the stakeholders



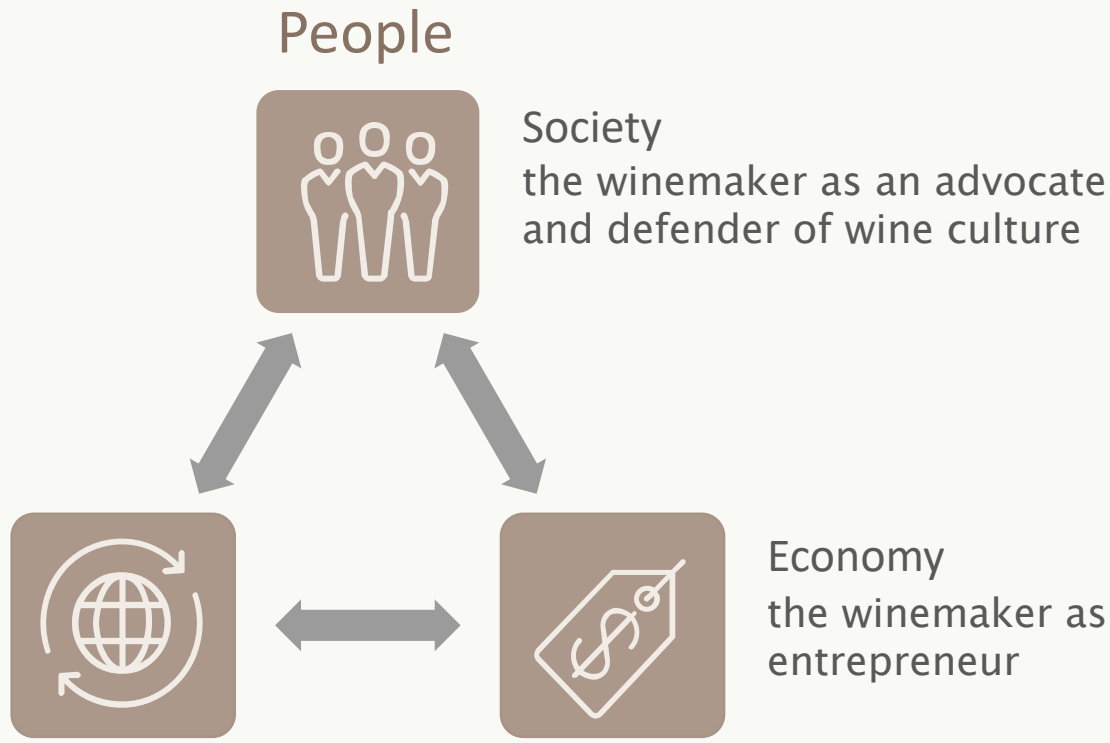
The supply chain: *all raw materials, goods and product steps up to the finished product at the end customer and beyond, including all processes, flows of goods, information and money.*

Without claim to completeness.

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The three pillars of sustainable winemaking

Viticulture is only sustainable when all three pillars are served.



People (society) – **Planet** (ecology) – **Prosperity** (economy)!

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Take the appropriate measures

In all areas: People – Planet – Prosperity!



Society

- employees
- influence on peers
- association activities
- Political engagement
- etc



Ecology

- CO_2 emissions
- soil fertility
- energy use
- water use
- bottles
- air travel
- agricultural machinery and labor associations
- etc



Economy

- fair pay
- job security
- well-maintained equipment
- key figures & transparency
- punctual taxes & duties
- incorruptibility
- etc

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Employee recruitment & retention

Investing in the team – it pays!

Motivated people have more fun and perform better at the same time!

- further education
- teambuilding measures
- family-friendliness
- gender equality
- creating meaning through values = employee loyalty
- fair pay
- common rooms & housing
- good catering (harvest time)
- etc

Employee turnover is expensive!

Up to 25,000 €
(for a middle-income manager)



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Water use

For one 0.75 liter bottle of red wine

Wine needs water

- at every stage of production
- throughout the supply chain
- in the vineyard
- in distribution
- 30 to 50% of the annual water use occurs during the harvest



8 to 200 liters of water*

CO_2-footprint: 1,155g

Biodiversity: 2.66/m^2

* depending on the region, irrigation, cooling, etc

Water footprint, carbon footprint & biodiversity: Study by the University of Bordeaux 2015 (Château Larose Trintaudon certified according to AFAQ 26000, not organic)



Footprint of a bottle of wine at Château Larose Trintaudon

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How to make water consumption more sustainable

Water is the basis of our prosperity!

Water-saving measures

Irrigation only when required	Alternative cooling methods
Drip irrigation (also protects from frost)	Wastewater utilization
Greening mixtures for drought (location)	Water recycling (attention: foodstuffs)
Only shallow loosening of the soil	Measured water use in sanitary systems
Rainwater tanks	….



Up to 30% of water can be saved simply by increased attention!

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All bottles are not alike

A huge lever for lowering CO_2-emissions!

Cause:
Raw materials, production, transport

Reduced weight:
12 to 17% lower CO_2-emissions (production)

CO_2-balance:

- energy (60%)
- proportion of recycled glass
- Weight
- transport to the bottler
- transport method (rail, trucks)
- national recycling quota

Glass bottles = up to 45%
of total emissions
from the winery



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Frequently traveling winemakers with a large footprint

Train travel creates space for work - and a relaxed idleness!

Total annual CO_2 budget per person: 2,300 kg

- CO_2 calculator, e.g. www.co2-rechner.at

Sustainable footprint per person: 1 gha

- Footprint calculator
  e.g. www.mein-fussabdruck.at

Compensate for flights

- directly with the airline,
  or e.g. with www.atmosfair.de

Example of a trip to Bordeaux
(1,738 km, three people)

Rail: 20 kg CO_2/person
Auto: 70 kg CO_2/person
Plane: 500 kg CO_2/person



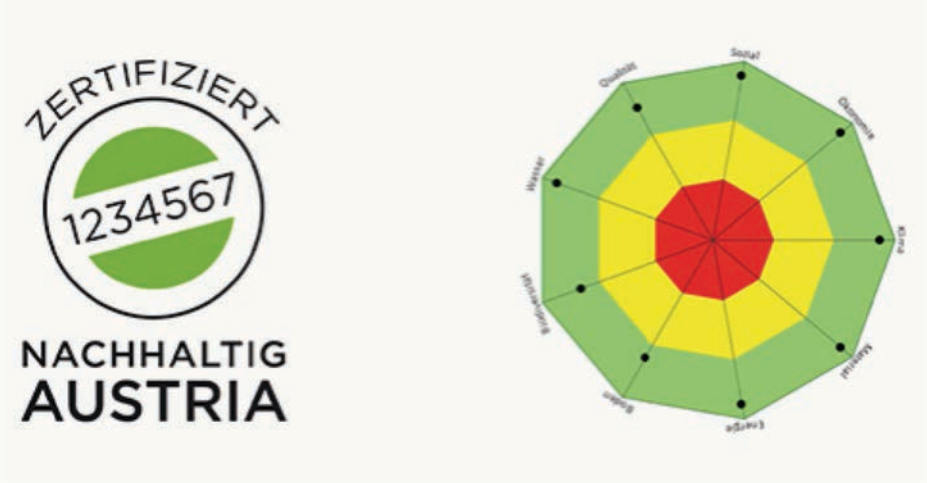
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Looking into the seal

The "Certified Sustainable Austria“ strategy

An Austrian sustainability label and an uncomplicated guideline for a winemaking sustainability strategy

- guidelines for sustainable viticulture
- a practical timetable through all core areas
- self-evaluation tool
- certification – by independent inspecting bodies (e.g. Lacon)



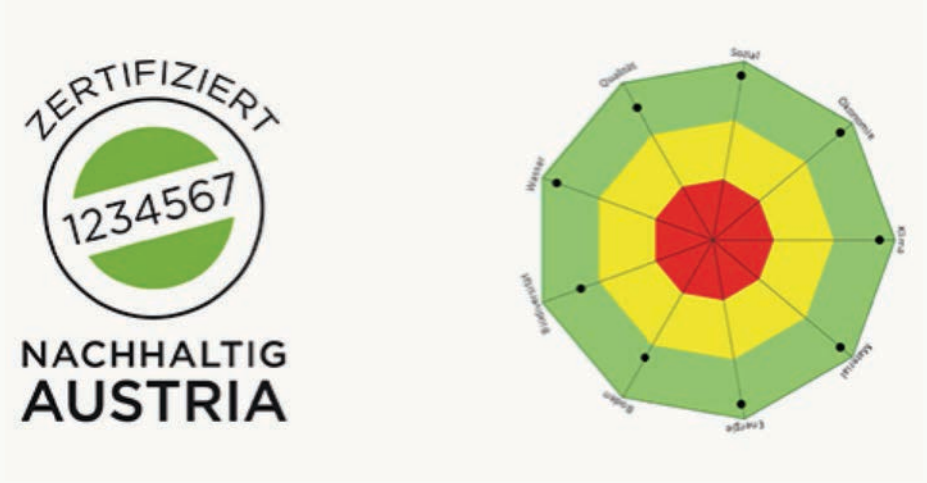
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Certifications create comparability. But with what?

The reasons for a "Certified Sustainable Austria“

Why the sustainability label was created

- pressure from the retail food undustry (their own certifications)
- internationally comparable system
- to counteract climate change
- consumer demand for sustainable wines



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Do certifications always create trust?

Advantages & disadvantages of "Certified Sustainable Austria“



Advantages

- simple entry
- a guide through all three pillars
- covers all areas
- reduced complexity
- provides a quick overview
- low-threshold
- self-evaluation free of charge
- cost-effective audit



Disadvantages

- consumers expect organic
- no herbicide ban
- many recommendations instead of clear guidelines
- therefore low participation by organic farms
- recertification only every three years
- evaluation not given in key figures
- no target requirements (climate targets!)
- little known among consumers

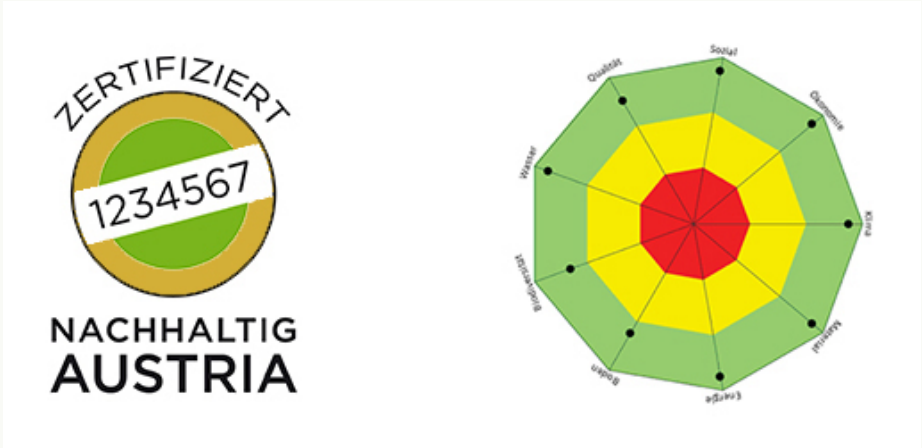
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Possible development steps & goals

„Zertifiziert Nachhaltig Austria“ & „Zertifiziert Nachhaltig Austria **Gold**“

- Results also as valid key performance indicators (KPI)
- Mandatory conformity with climate targets (40% CO2 reduction by 2030, share of energy from renewable sources of at least 32%, increase in energy efficiency by at least 32.5%)
- Ban on herbicides
- clearer guidelines instead of recommendations (biodiversity!)
- Stricter controls
- annual evaluation
- **NHA Gold** = organic as an incentive for the next level

True sustainability is always a development!



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Best practices, Weninger Winery

Central Burgenland/Austria & Balf/Hungary

CO_2-free heating	Reduction, wherever possible
Cooling with groundwater	Involvement of the employees
Photovoltaic system & green power	Humus formation: 12,000t CO_2 storage/10 years
Electric fleet (electric tractors!)	2018 Climate Protection Award (Republic of Austria)

53 hectares of biodynamically cultivated vineyards in two countries

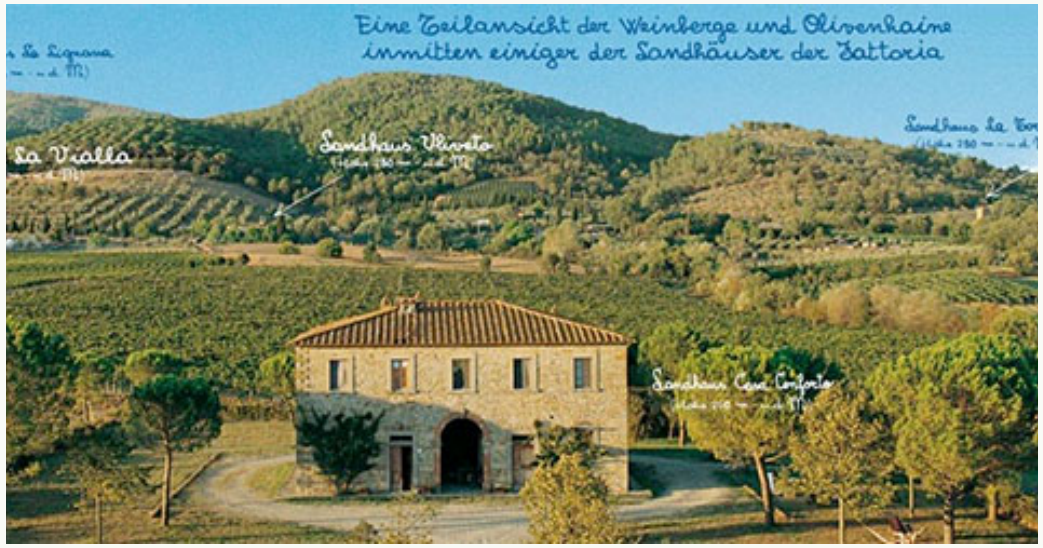


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Best practices, Fattoria La Vialla

Tuscany

CO_2-neutral since 2014	Avoidance of plastic	1,400 hectares of biodynamic agriculture
A circular economy in many areas	Use of graywater	
20 % lower energy consumption	**Target**: > 10% of transport by rail	
36% of energy from photovoltaics (target: 60%)	**Team**: 160 people from 25 countries	



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Best practices, Manincor Winery

South Tyrol

2007 opening of the underground cellar

- natural ventilation system
- earth sensors with a heat exchange pump
- hot water via wood chip heating
- glass windows for daylight
- natural ventilation

Further sustainability measures

- solar cells
- sowing for increased biodiversity
- sheep & chickens in the vineyards
- breeding grounds & hiding places for animals & insects
- electric autos (most electricity from hydropower)

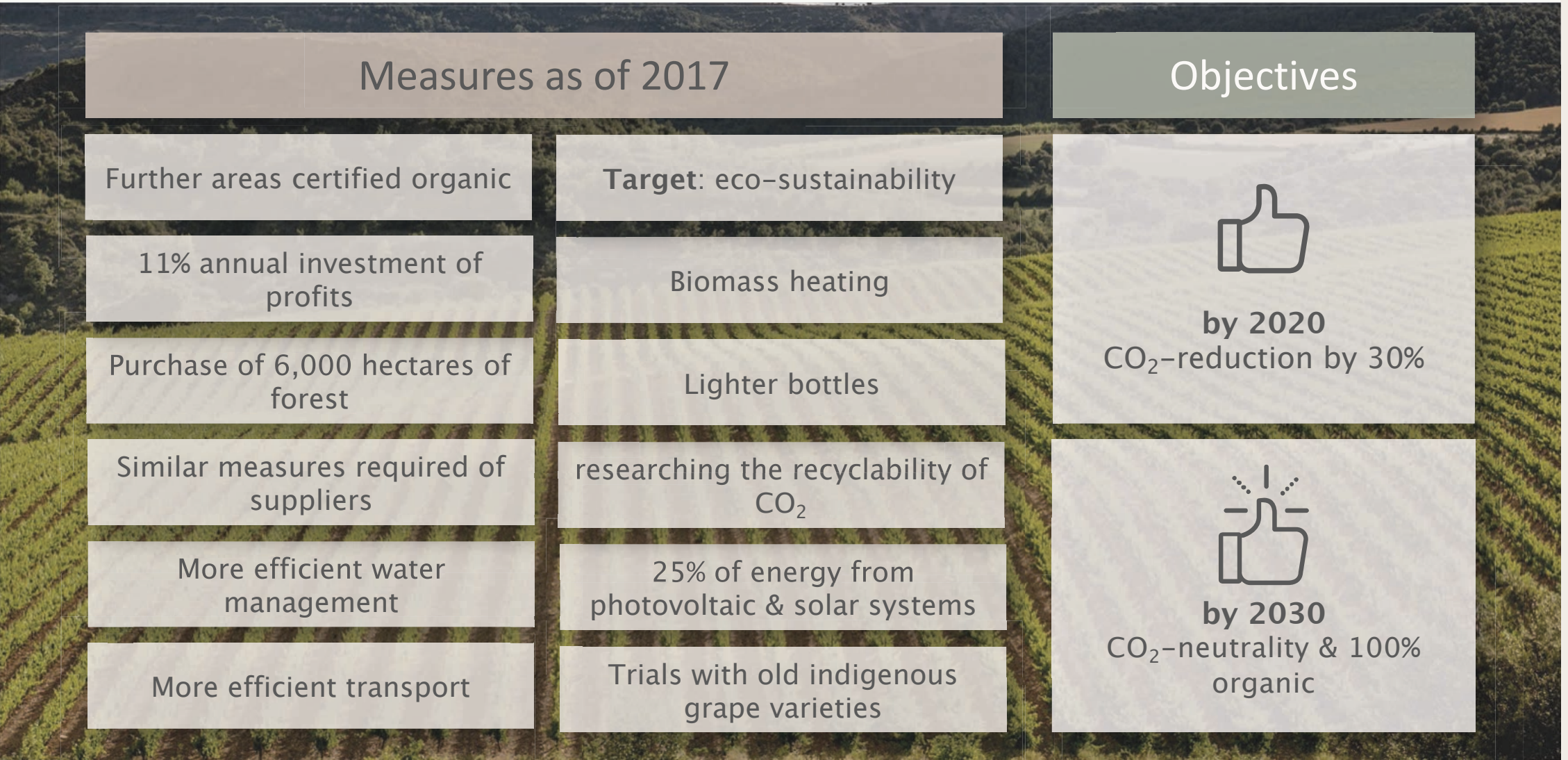
50 hectares of biodynamically cultivated vineyards on Lake Kaltern



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Best practices, Bodegas Torres

in Spain & South America



Measures as of 2017

- Further areas certified organic
- 11% annual investment of profits
- Purchase of 6,000 hectares of forest
- Similar measures required of suppliers
- More efficient water management
- More efficient transport
- **Target**: eco-sustainability
- Biomass heating
- Lighter bottles
- researching the recyclability of CO_2
- 25% of energy from photovoltaic & solar systems
- Trials with old indigenous grape varieties

Objectives

by 2020
CO_2-reduction by 30%

by 2030
CO_2-neutrality & 100% organic

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From the 17 Sustainable Development Goals of the Paris Agreement

The most important goals and targets for wineries



Sustainable consumption & production

- 12.2 Sustainable management & efficient use of natural resources
- 12.5 Prevention, reduction & recycling of waste



Living on the land

- 15.1 Conservation, restoration & sustainable use of ecosystems

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The 17 SDGs



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Recommended Literature

A small selection

- Agricultural & Food Economics: agrifoodecon.springeropen.com/articles/10.1186/2193-7532-1-9
- American Association of Wine Economics: Climat Change & Wine Production: wine-economics.org
- CSWA. Sustainable Water Mangagement Handbook: sustainablewinegrowing.org/.../CSWA_Sustainable_...
- Die Zeit. Climate change – the deluge is coming: zeit.de/kultur/2018-10/klimawandel-schuld-anerkennung-klimakrieg-weltklimakonferenz
- FAZ. Insect mortality: faz.net/aktuell/wissen/leben-gene/insektensterben-75-prozent-weniger-insekten-in-deutschland
- MDPI. Water Footprint of the Wine Industry: mdpi.com/2071-1050/7/9/12190/pdf
- OIV Wine & Sustainability: oiv.int/en/viticulture/wine-and-sustainability
- Robinson, Jancis lighter bottles at Tesco: jancisrobinson.com/articles/tesco-launches-lightest-ever-bottle
- Science Direct. Sustainability in the Global Wine Industry: sciencedirect.com/science/article/pii/S2210784316300067
- Solnit, Rebecca. Don‘t despair! The climate fight is only over if you think it is. theguardian.com
- Vinaria: It will be a wine (future scenarios): www.vinaria.at/News_Detail.aspx?id=1533
- WWF Living Planet Report 2018: www.wwf.at



Sources

Images & films

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- Sylvia Petz: Supply chain image
- Austrian Wine Marketing: Winemaking regions of Austria image (modified by Sylvia Petz)
- Austrian Wein Marketing: Logo and diagram: Certified Sustainable Austria
- Porto Protocol: A film about climate change: https://www.youtube.com/watch?v=4L9IuPX9WGs
- Swissman: A film on Digitization & Industry 4.0. https://www.youtube.com/watch?v=kQLbVVPNTMQ
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- University of St. Gallen: A film on corporate sustainability. https://www.youtube.com/watch?time_continue=6&v=8rwjMc-Ziug
- UNO: Sustainable Development Goals
- Vinaria, 4/2016: Wine & climate changel. Subject Standard Report on Climate Change (AAR14) J. Eitzinger & H. Formayer



Stay in touch!



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