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100 YEARS OF BIODYNAMICS A LOOK INTO THE FUTURE



100 years of biodynamic agriculture - What is modern about 100 year old ideas?
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Farming family ca. 1910

Source: August Sander Photography / Book: People of the 20th century



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Farmer at work – ca. 1928

Source: August Sander Photography / Book: People of the 20th century



Farmer sowing – ca. 1940



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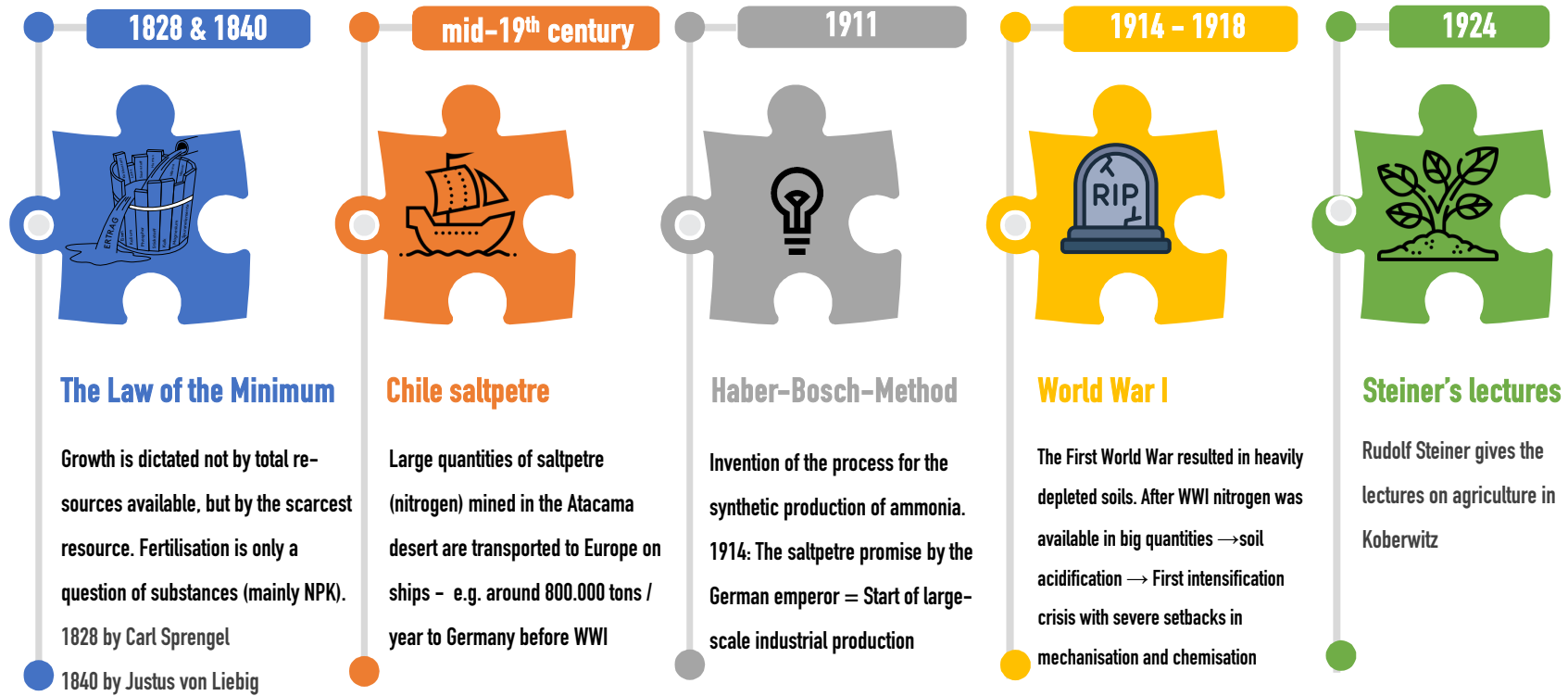
Fotovermerk: Auch der Weinberg verlangt sorgfältige Pflege. Der Dünger muss in Kiepen oder Körben die steilen Berge hinangetragen werden.
Foto Aug. Sander, Köln 1-ta.



Aims and Objectives of agricultural science 100 years ago:

- How to ensure food security?
- How to increase quantity?
- How to facilitate the work?
- How to increase quality?

Agriculture from the 19th century onwards



Agricultural science and its specialisation

Foundation of Viniculture Schools in German Speaking countries:

1860 Kloster Neuburg – first worldwide

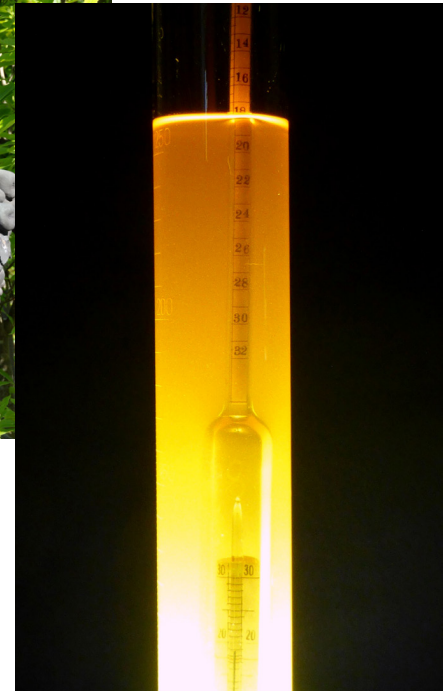
1868 Weinsberg

1872 Geisenheim

1899 Bad Neuenahr-Ahrweiler

1902 Veitshöchheim

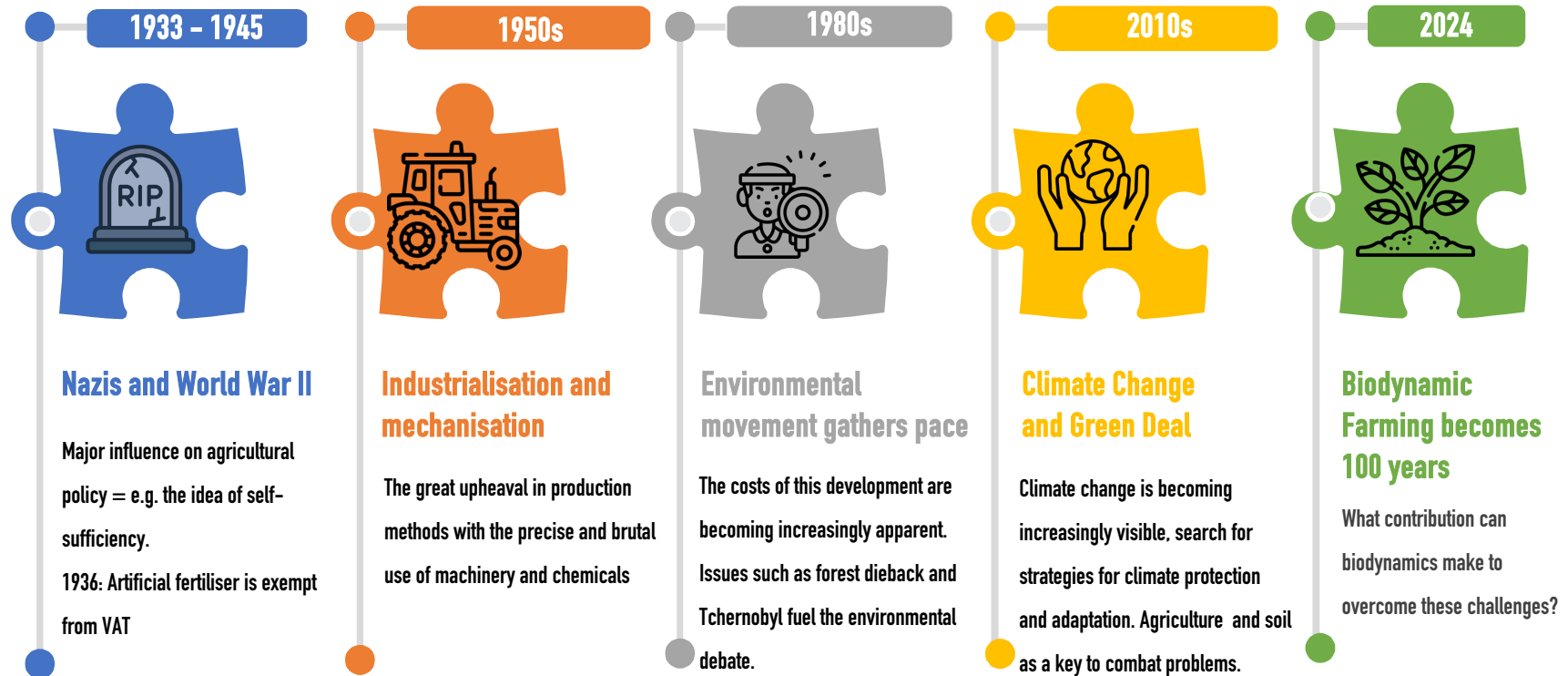
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Agriculture from the 20th century onwards





Where did Rudolf Steiner get it right?

- Soil is not just „dirt“ and fertilising is not just adding some substances
- good farming means building soils
- Science must also take place on living objects, outdoors in nature



Some of the aims of agriculture today (biodynamic or not...):

- **Ensure sustainable yields in times of climate change**
- **Reduction greenhouse gas**
- **Enhancing Biodiversity**
- **Sustainable land use and soil health**

2022 In den Kreuthern Grüner Veltiner Weingut Schödl, Weinviertel

**„Rudolf Steiner's ideas on soil and fertilisation
were always modern – people just didn't
understand them for a while.“**

Mathias Schödl

- Vines planted from three generations**
- Calcareous loam**
- Wild fermentation**



2021 Grüner Veltliner „Alte Reben“ Magnum Weingut Ebner-Ebenauer, Weinviertel

- Vines planted in the 1950s
- Loess and gravelly soils
- Wild fermentation in used wooden casks.

**„In most years we have to make do with very little water.
We can promote humus build-up & thus the water
storage capacity! Biodynamics thus helps us to face
CLIMATE CHANGE with confidence and basic trust!“**

Marion Ebner-Ebenauer



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2021 Ried Rosenberg 1 ÖTW Nussberg Grüner Veltliner Weingut Bernhard Ott, Wagram

„Compost is a medicine.“

Bernhard Ott

- South-facing encircled vineyard
- 65 year old vines
- Loess soils
- Basket press
- Wild ferment in big wooden casks



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2019 Ried Goldberg 1ÖTW Grüner Veltliner Weingut Diwald, Wagram

- 28 year old vines
- South-facing slopes, 305 mNN
- Loess soils
- Wild fermentation in stainless steel
- Lees ageing for 10 months in stainless steel



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Can PIWI be the only answer?

(source: GWI statistics 23/24 – Austrian Wine statistics 23)

- 80% less plant protection required / 2 treatments (e.g. with organic sprays)
- Savings of 40 kg/ha CO₂ per plant protection measure
- Currently around 3% (2700 ha) of the vineyards planted in Germany
- Currently around 1.8% (820 ha) of the vineyards planted in Austria

PIWI Germany	PIWI Austria
1618 ha Regent (red)	278 ha Roesler (red)
260 ha Cabernet Blanc (white)	110 ha Blütenmuskateller (white)
205 ha Sauvignier Gris (white)	97 ha Muscaris (white)
126 ha Johanniter (white)	66 ha Sauvignier gris (white)
117 ha Muscaris (white)	50 ha Rathay (red)



Pruning methods and results. „Think like a plant“

Picture source: www.wordonthegrapevine.co.uk



Land consolidation e.g. Rüdesheim Mountain

Focus: Mechanisation & Drainage after many rainy years

What about soil life?



„Today, almost 50% of all grafted vines in the Federal Republic of Germany are grafted onto Geisenheim rootstocks.... Around 40% of all Riesling vines grafted for German viticulture are Geisenheim clones.“

Prof. Dr. H. Becker, in the year 1972

Source: Geisenheim 1872 – 1972 – 100 Jahre Forschung und Lehre für Wein-, Obst- und Gartenbau



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- 1874 Phylloxera discovered for the first time near Bonn
- 1891 research on grafting in Geisenheim starts.
- Use of clone selections becomes common from 1927 onwards
- Grafting was state ruled = 1936 = 423 000 vines
- After WWII grafting privatised = 1957 = 50 million grafted vines

(Source: Geisenheim 1872 – 1972 – 100 Jahre Forschung und Lehre für Wein-, Obst- und Gartenbau / Prof. Dr. W. Kiefer, page 63ff)



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Wine yields in France, Germany, Italy and Spain 1900 to 2015 in KL/ha, ten-year moving average

(Source: Book Wine Globalization by Kym Anderson & Vicente Pinilla – Cambridge University Press, 2018)

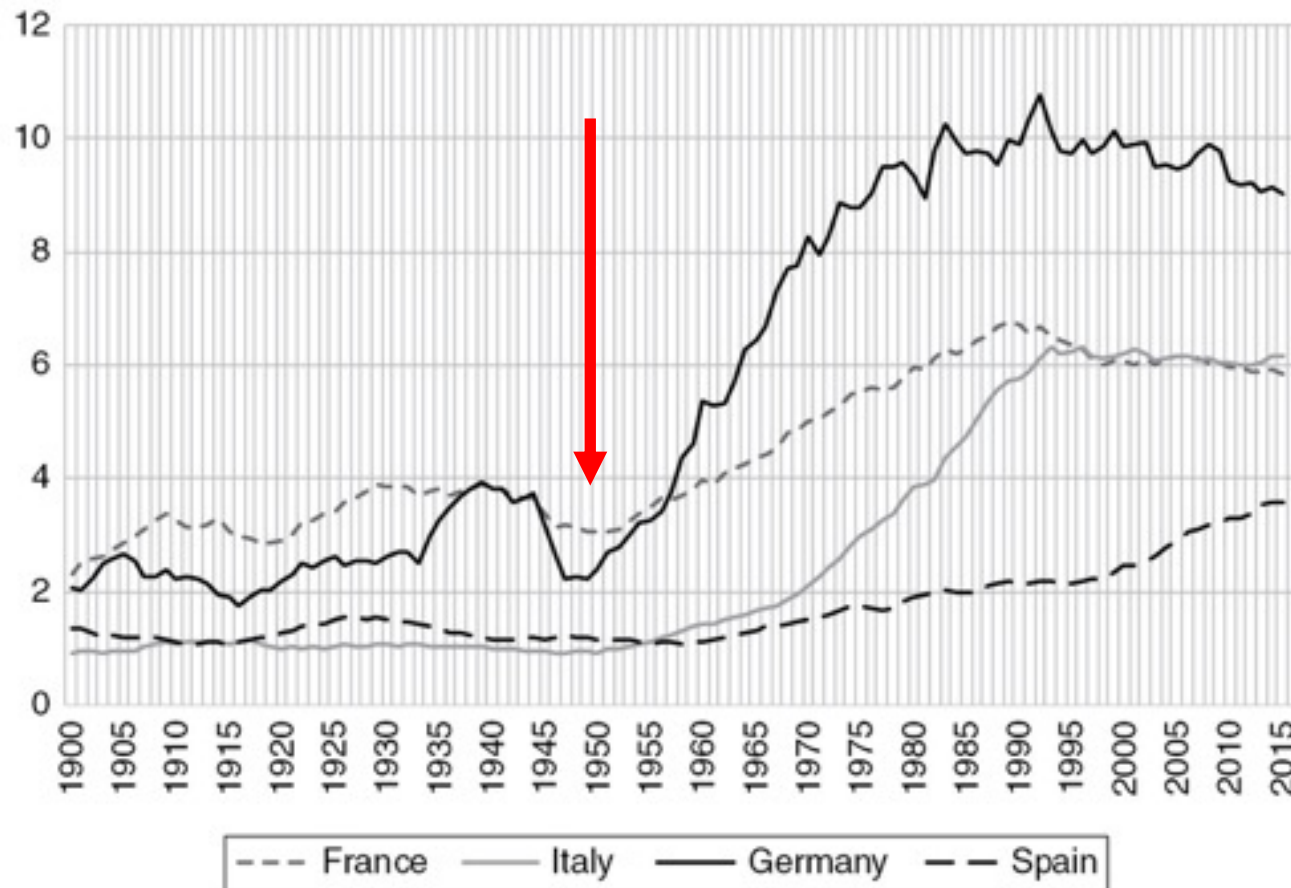


Figure 4.2 Wine yields in France, Germany, Italy and Spain, 1900 to 2015 (KL/ha, ten-year moving average).

And what about the practices in vine nurseries?

Pictures made by Romana Echensperger MW



e.g. Christop Hebinger in Eguisheim:

- Organic practices / diversity of rootstocks
- Mother vine trained on tables
- F2 graft instead of Omega graft
- **Sélection massale**





Where did Rudolf Steiner get it right?

- **Farm individuality e.g. for the development of own farm varieties**
- **„The human being becomes the basis for observation.“
= Tools for the practitioners to gather information and categorise it**

2022 Reiterpfad Riesling trocken Garage Caveau, Pfalz

„For me, biodynamics shows in a hot vintage like 2022 that you can still produce cool Rieslings.“

Martin Fußer

- Sandstone with chalky marl (red)**
- Whole bunch pressing**
- Wild ferment in stainless steel**
- No temperature control**
- On full yeast until May 2023**



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2017 Ried Gaisberg 1ÖTW Zöbing Riesling Weingut Hirsch, Kamptal DAC

- Southwest facing vineyard
- Lime-free silicate brown earth of sandy soils =
formed from weathered mica schist
- Whole bunch pressing
- Wild fermentation
- Some batches in stainless steel and some in casks
- Around 8 months lees ageing



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2017 Marienburg Rotenpfad „Reserve“ VDP.Grosse Lage Weingut Clemens Busch, Mosel

- Part of the Marienburg Vineyard with red slate
- South-east facing slope
- Wild fermentation
- Reserve = 24 months ageing on lees
- Big wooden casks (Fuder)
- No filtration



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2015 Kastanienbusch GG VDP.Grosse Lage Weingut Ökonomierat Rebholz, Pfalz

- Kastanienbusch is a south, southeast facing and steep slope
- Special red soils „Oberrotliegendes“ — mix granite, slate and melaphyr, high iron content
- Multiple harvesting passes & de-stemming
- 24 h skin contact
- Fermentation in stainless steel
- Since 2015 working with own cultured yeast





How many vitis vinifera varieties are there actually?

≈1368

Purple Pages by
Jancis Robinson MW

10.000 !

chatGPT

6000 ?

OIV



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Austria & Germany: today the respective 10 most planted grape varieties \approx ca. 80% of the vineyard area



Copyright: Landesmedienzentrum Baden-Württemberg
Weinlese: Bremsen des Leiterwagens, Zabergäu, ca. 1950

There are many reasons for concentrating on just a few varieties – only a few examples:

- Marketing & consumer preferences
- Variety belongs to the terroir concept
- Viticultural objectives: e.g. **homogeneity**, secure and stable yields, **must weight**, mechanisation requirements, etc.,...
- Some grape varieties lost out to '**modern**' **cellar recipes**, for example Silvaner or Roter Veltliner

Cellar Technology in Geisenheim founded only in 1962

**„In the technical field, there was no need for differentiated
methods of cellar technique.**

**The wines were stored in barrels for 2 – 3 years, fermented dry
and were basically subject to the coincidences of the vintage.“**

Prof. G. Troost

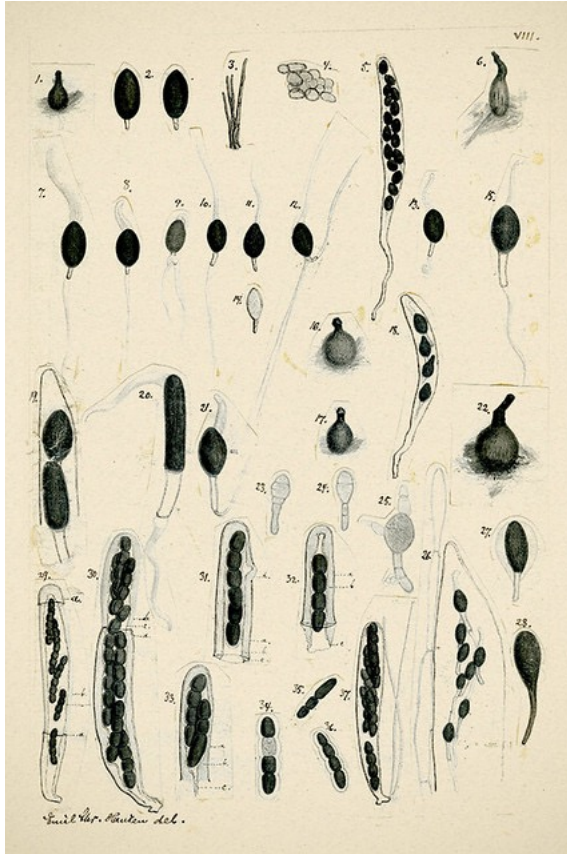
Source: Geisenheim 1872 – 1972 – 100 Jahre Forschung und Lehre für Wein-, Obst- und Gartenbau



The backstory of cultured yeast



- 1883** Emil Christian Hansen developed cultivated yeast
- 1894** Foundation of cultured yeast breeding in Geisenheim
Prof. Dr. Müller-Thurgau
- 1902** Foundation of cultured yeast breeding Klosterneuburg
Prof. Wenzel
- 1966** Audit office from Hessen complains that sale of cultured yeast
no longer covers costs and recommends closing
- 1960s:** chemical treatment of Botrytis (e.g. Euparen, Folpet)
= use of cultured yeast became common



Pictures: www.brookstonebeerbulletin

Source: Geisenheim 1872 – 1972 – 100 Jahre Forschung und Lehre für Wein-, Obst- und Gartenbau, Prof. Dr. H. H. Dittrich, page 108 ff
www.weinobstklosterneuburg.at – 160 Jahre Geschichte Klosterneuburg



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Where did Rudolf Steiner get it right?

- **There are countless interactions in nature. Many of them are not (yet) known.**
- **Respekt for Nature's slowness (Goethe)**

2021 Ried Rosengartl 1ÖTW Nussberg Wiener Gemischter Satz DAC Weingut Wieninger, Wien

- South-facing slope**
- Core of the vineyard Nussberg**
- Limestone soils with clay**
- Field blend**
- Vineyard planted with 50% Grüner Veltliner and Weißburgunder, Neuburger, Traminer and Riesling**
- Skin contact for 4 hours**
- Stainless steel**



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2021 Ried Steinberg 1 ÖTW Roter Veltliner Weinberghof Fritsch, Wagram

- Steep slopes facing southeast
- Slate & Granite soils with some loess
- 12 year old vines
- 310 – 330 mNN
- Berries were crushed
- 36 hours skin contact
- Wild fermentation
- Ageing in 2000 l barrels made of Acacia wood



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2021 Ried Zieregg Steilriegel Morillon GSTK Weingut Tement, Südsteiermark

- Coralline limestone soil and loose brown earth
- Southwest facing slope, warmest part of the vineyard
- Around 40 year old vines
- Wild fermentation in neutral casks
- 24 months lees ageing
- Unfiltered



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2021 Ried Alter Kranachberg Sauvignon Blanc Familienweingut Sattlerhof, Südsteiermark

- 450 mNN, southfacing steep slope
- calcareous silica sands
- Fermentation in stainless steel



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**‘Our age is proud of machines
that can think,
and suspicious of humans who try.’**

H. Mumford Jones



Biodynamic perspectives for the future

Climate Change & Decarbonisation:

- Biodynamics can help to make agroecosystems more resilient through soil development and biodiversity strategies.
- We will continue to make a positive contribution in the future by storing CO₂ through humus formation. We are also open to environmentally friendly new technologies (e.g. building technology, light bottles, machines, etc,...).
- **It is important to review and evaluate modern techniques and use them accordingly. NO DOGMA!!**



Biodynamic perspectives for the future

Certification is very important to us!

- How can it offer more freedom without jeopardising quality?
- How can it better serve the development of wineries?
- The situation in the vineyard is changing rapidly. Certifications and legislators are adapting too slowly. How can this be overcome?



Biodynamic perspectives for the future

Declining wine consumption and increasing anti-alcohol policies is viticulture's No. 2 risk after climate change.

- Our goal: wine as a cultural asset, not just as a beverage. Biodynamic viticulture can promote understanding and appreciation.'



2019 Gumpoldskirchen Anning Pinot Noir

Weingut Fred Loimer, Thermenregion

- Sedimentary soil interspersed with limestone gravel
- Pannonian climate
- 11 – 14 year old vines / 5000 plants per ha
- Wild fermentation with 100% stems
- Ageing for 12 months in 300 l barrels
- & ageing for 6 months in big wooden casks



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2021 Blaufränkisch Ried Ruster Ludmaisch Leithaberg DAC Weingut Feiler-Artinger, Burgenland

- Light sandy topsoil on granit-gneis micashist
- Wild ferment in open vats
- Punching down by hand
- 24 months ageing in barrique
- 25% new oak



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2021 Blaufränkisch Astral, Weingut Andreas Gsellmann, Neusiedlersee

- Wild fermentation in 500 l wooden casks
- Cooler fermentation temperature (25 – 27°C)
- On lees for 5 months
- Afterwards aged in 1000 l amphora
- Unfiltered



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2015 Alter Berg Blaufränkisch, Leithaberg DAC Gernot & Heike Heinrich, Burgenland

- Southeast facing slopes
- Forrest on top, cherry trees in the rows
- Poor limestone soil
- Wild fermentation
- Three weeks time on the skins
- Ageing for 28 months in 500 l barrels



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Thank you for your attention

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100 YEARS OF BIODYNAMICS – VieVinum, 27th May 2024

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