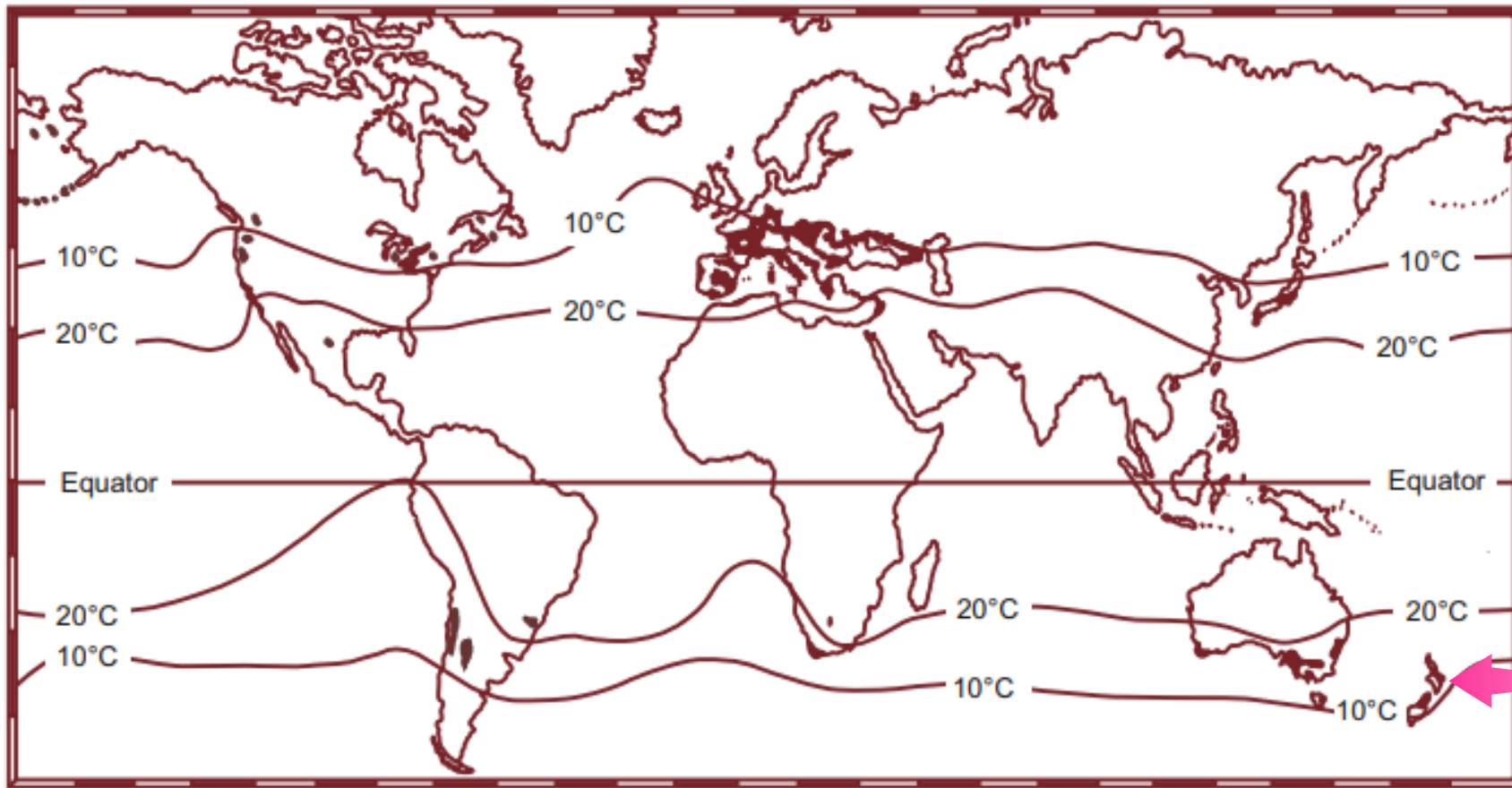




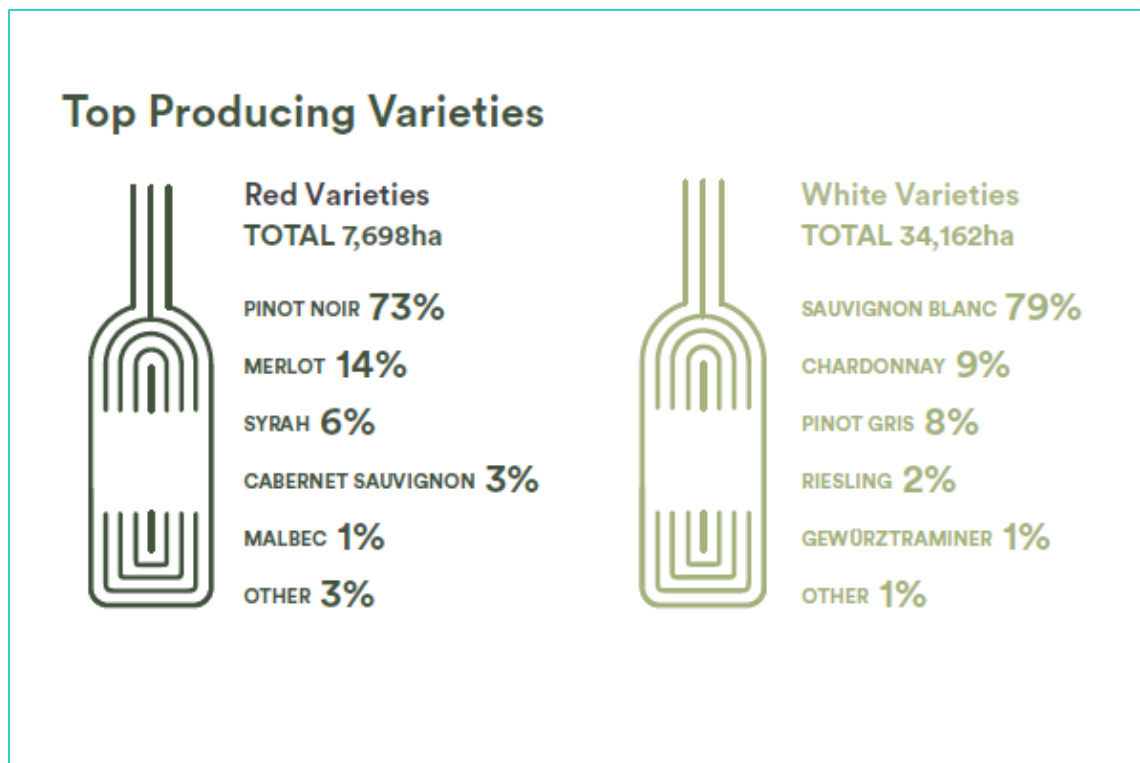
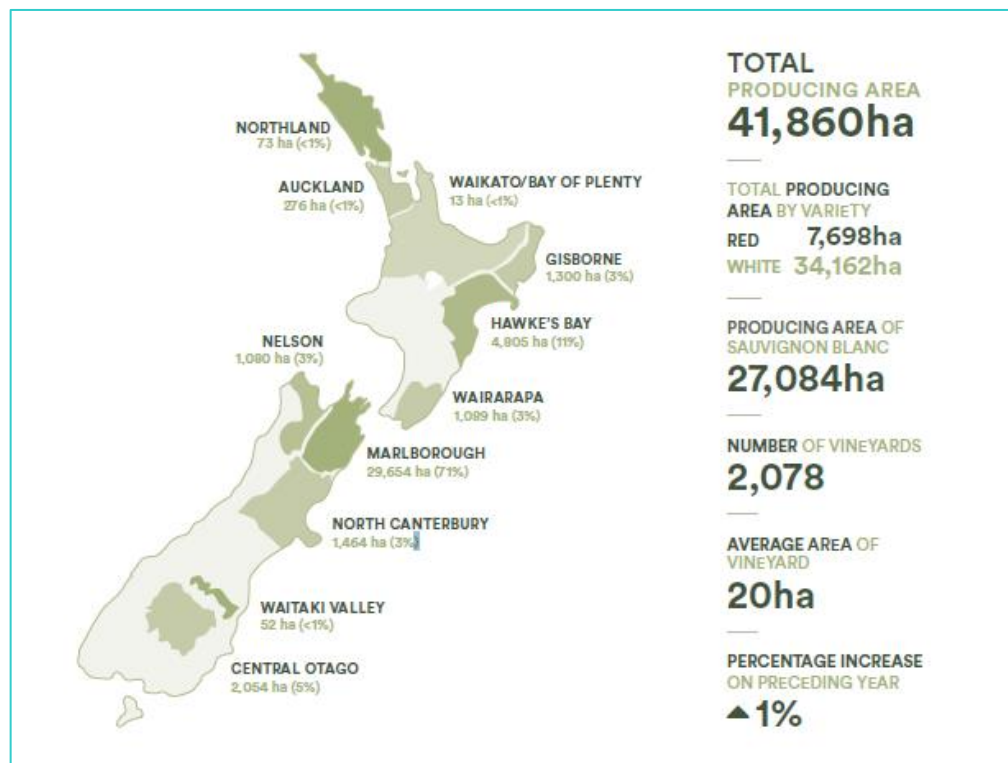
A year in winegrowing: challenges and reflections

Mewael Kiros Assefa (PhD)
19 April, 2024



(Jackson , 2020)

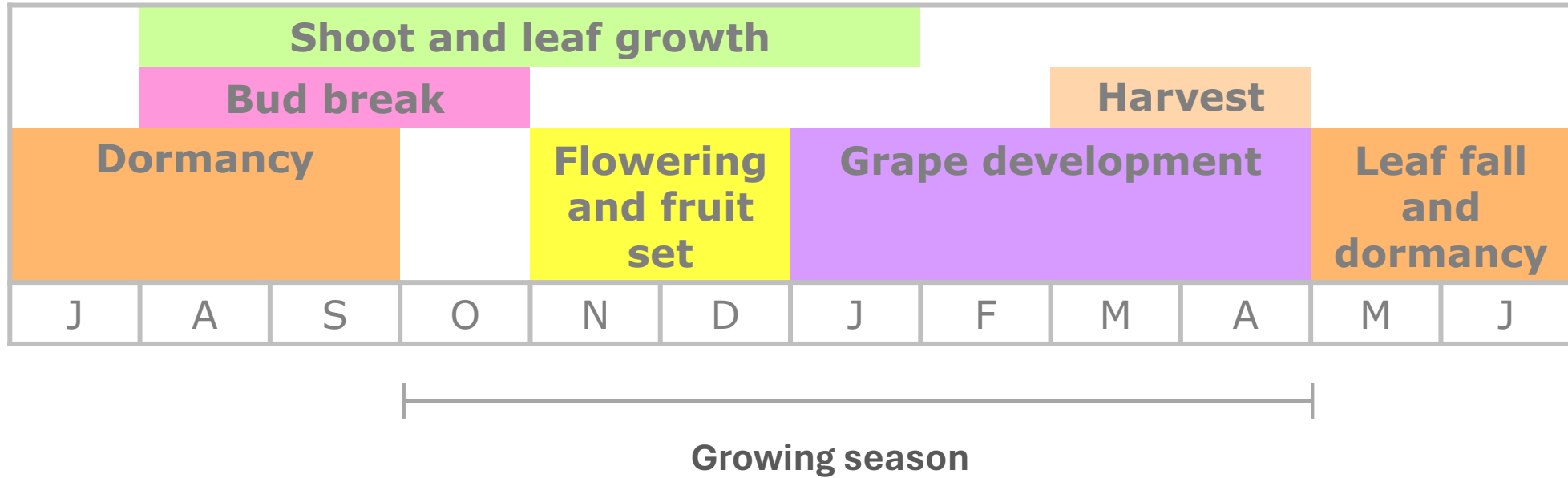
A Snapshot 2023



Total Value of Exports
\$2.14 Billion ▼ 0.3%

Domestic Sales, Volume
September 2023
42.5 mL ▲ 8%

Vine growth cycle



April

Vines' all season hard work and exhaustion



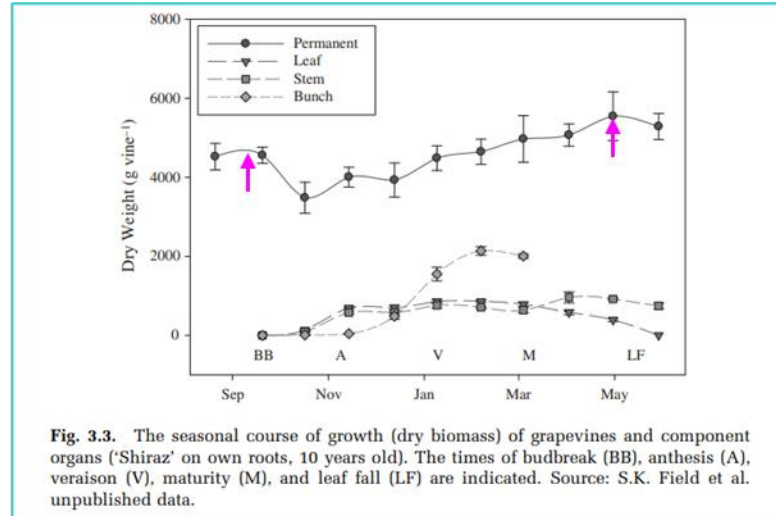
Photo by Mewael Kiros Assefa

Primary fermentation



Photos by Mewael Kiros Assefa

Recharge time



(Holzapfel et al. 2010)

May

Recharge time



Photos by Mewael Kiros Assefa

May - July

Resting vines



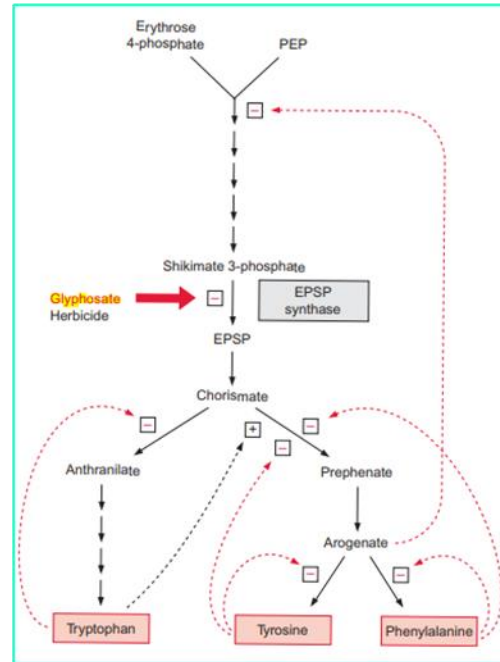
Photo by Mewael Kiros Assefa

May - June

Managing the floor



Weed control,
Grass mowing



Shikimate pathway
Heldt and Piechulla (2011)



Resistance development

June- Aug.

Pruning

How many nodes to retain?



Photos by Mewael Kiros Assefa

Pruning

How many nodes to retain?



If ≈ 1 kg at harvest

\approx



June – Aug.

Pruning and protecting the future

Trunk disease

Eutypa and Botryosphaeria produce spores that are released during wet weather



Photos by New Zealand Winegrowers

June – Aug.

Trunk disease

Apply wound protectants



Remedial surgery



Photos by New Zealand Winegrowers

June – Aug.

Pruning prepares the next season



Sep. – Oct.

Bud break: the start of the season



Photos by Mewael Kiros Assefa

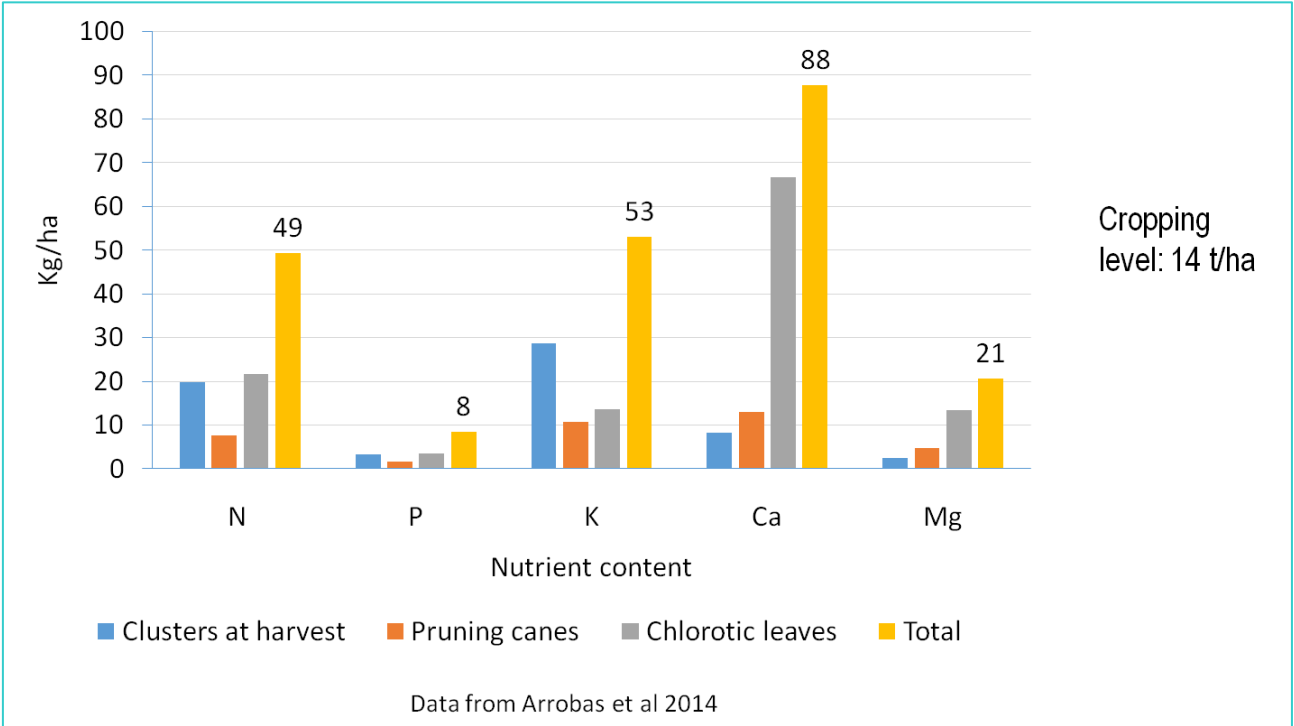




Nutrition deposit for the season



Photos by Mewael Kiros Assefa

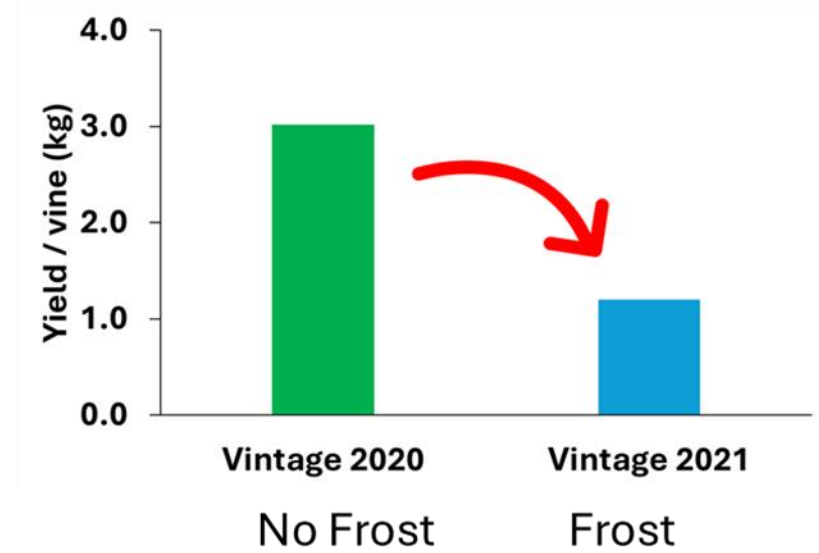


Oct.

Frost



Photos by Mewael Kiros Assefa



Common vineyard diseases



Photos by Mewael Kiros Assefa



Photos by New Zealand Winegrowers



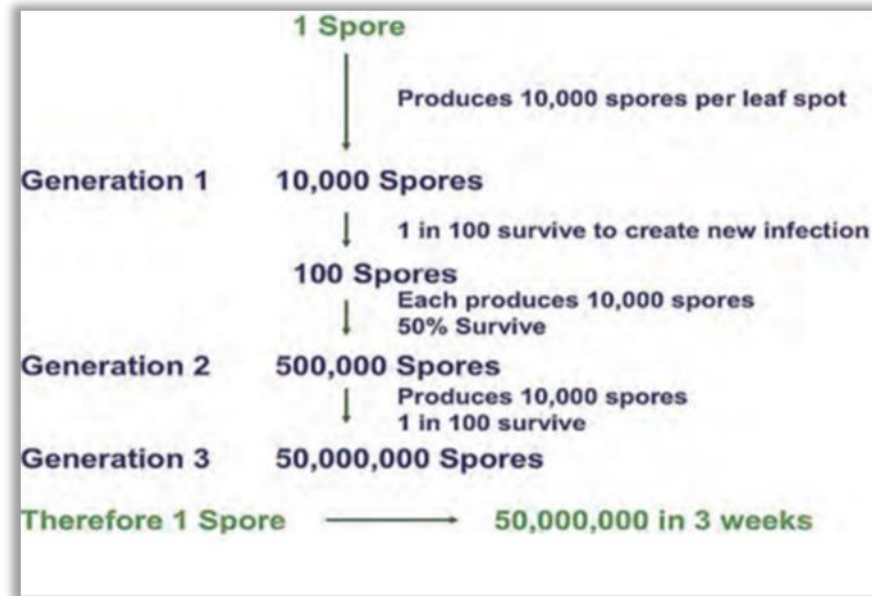
Photos by New Zealand Winegrowers

Oct.

Common vineyard diseases

Powdery mildew

`Green disease`



From this to below can happen over a very short period of time.
















Photos by New Zealand Winegrowers



Photos by Mewael Kiros Assefa

Use a protectant spray from 10-14 days after budburst through to veraison at 10-14-day intervals

RECOMMENDED POWDERY MILDEW SPRAY PROGRAMME

	 Winter Bud E-L 01 July	 Bud Scales Opening E-L 2 August	 Budburst E-L 4 September	 Shoots 2-4 cm E-L 9 September	 Shoots 10-15 cm E-L 12 October	 12 leaves visible Pre flowering E-L 17	 Flowering starts 5x capfall E-L 19 November	 Fruitset 80% Capfall E-L 27 December	 Berries Pea Sized E-L 31 December	 Pre Bunch Closure E-L 32 January	 Veraison E-L 35 February	 Harvest E-L 38 March	 Post Harvest E-L 41 April	
	NO RISK		MODERATE RISK		HIGHEST RISK - MUST MONITOR FOR PM						MODERATE RISK			
Canopy	Prune excess wood in the heads. Leave a secateurs length gap between laid canes		Bud rub unwanted shoots especially those high up on the trunk						If appropriate for intended wine style, leaf pluck immediately after fruitset to improve airflow and coverage on berries		Keep an open canopy		Remove infected bunches	
Sprayer	Annual Sprayer Maintenance		SETUP SPRAYER Early Season		Turn on nozzles as canopy grows		SETUP SPRAYER Test coverage with WSP		CRITICAL SPRAYER SETUP Test coverage with WSP		SETUP SPRAYER Adjust for eradicants at high water rates			
Conventional Chemical Spray			Use protectant spray with wetter every 10-14 days (E.g. sulphur plus wetter)		Use protectant spray with wetter every 8-12 days (E.g. sulphur plus wetter)						Use protectant spray with wetter every 10-14 days (E.g. sulphur plus wetter)			
					Apply single site fungicide		Apply single site fungicide		Apply single site fungicide		Apply single site fungicide			
				<ul style="list-style-type: none"> Single site mode of action fungicides can be applied on their own or mixed with sulphur Alternate single site fungicides with sulphur plus wetter In the NZW Spray Schedule, multisite fungicides are labelled resistance group M. All other fungicides numbered 1-44 are considered single site fungicides Single site fungicides act on one metabolic pathway, therefore are at greater risk of resistance development Observe resistance management strategies in NZW Spray Schedule, and your winery's advice on chemical use 										
						Use eradicant spray at the first sign of infection								
				Do not apply sulphur for 7-10 days after oil sprays										





Photos by New Zealand Winegrowers



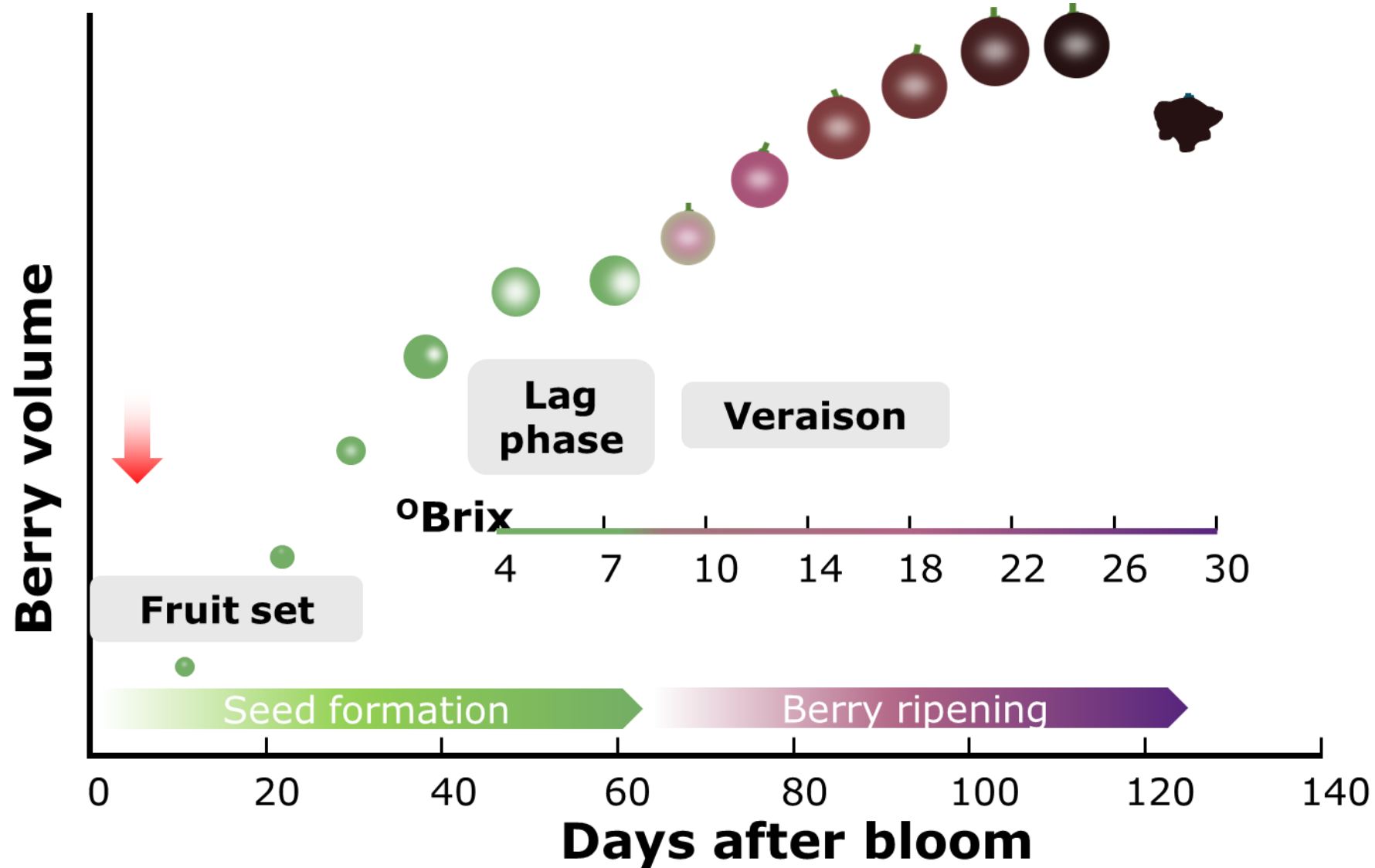
Shoot thinning



Photos by Mewael Kiros Assefa

Dec.

Reminder!



Adapted from Coombe (2001)

Hedging at flowering



Photos by Mewael Kiros Assefa



Table 1. Effect of canopy manipulations on fruit yield and yield components of Pinot noir grapevines during two consecutive seasons.

	Fruit set %	Berry wt (g)	Berries/ cluster	Cluster wt (g)	Clusters/ shoot	Shoots/ vine	Yield/ shoot (g)	Total yield/ vine
(A) Tipping								
No	35.4	1.20	92	107	1.71	21.5	186	4.20
Yes	44.3	1.18	104	111	1.70	17.5	204	3.55
Significance (p)	0.0001	ns*	0.0002	0.0002	ns	<0.0001	0.0475	0.0201



(Vasconcelos and Castagnoli, 2000)

Dec.

Common vineyard diseases

Feb. –Apr.

Botrytis



Botryticide



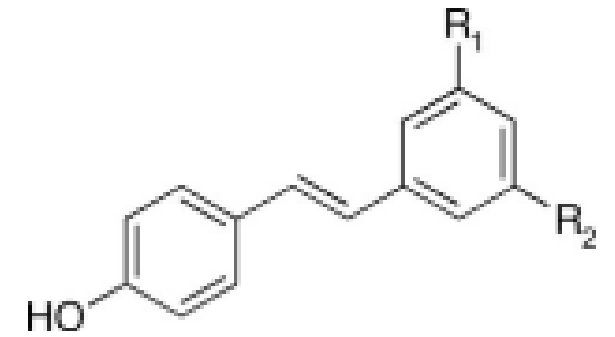
Photos by New Zealand Winegrowers

shaking the vine



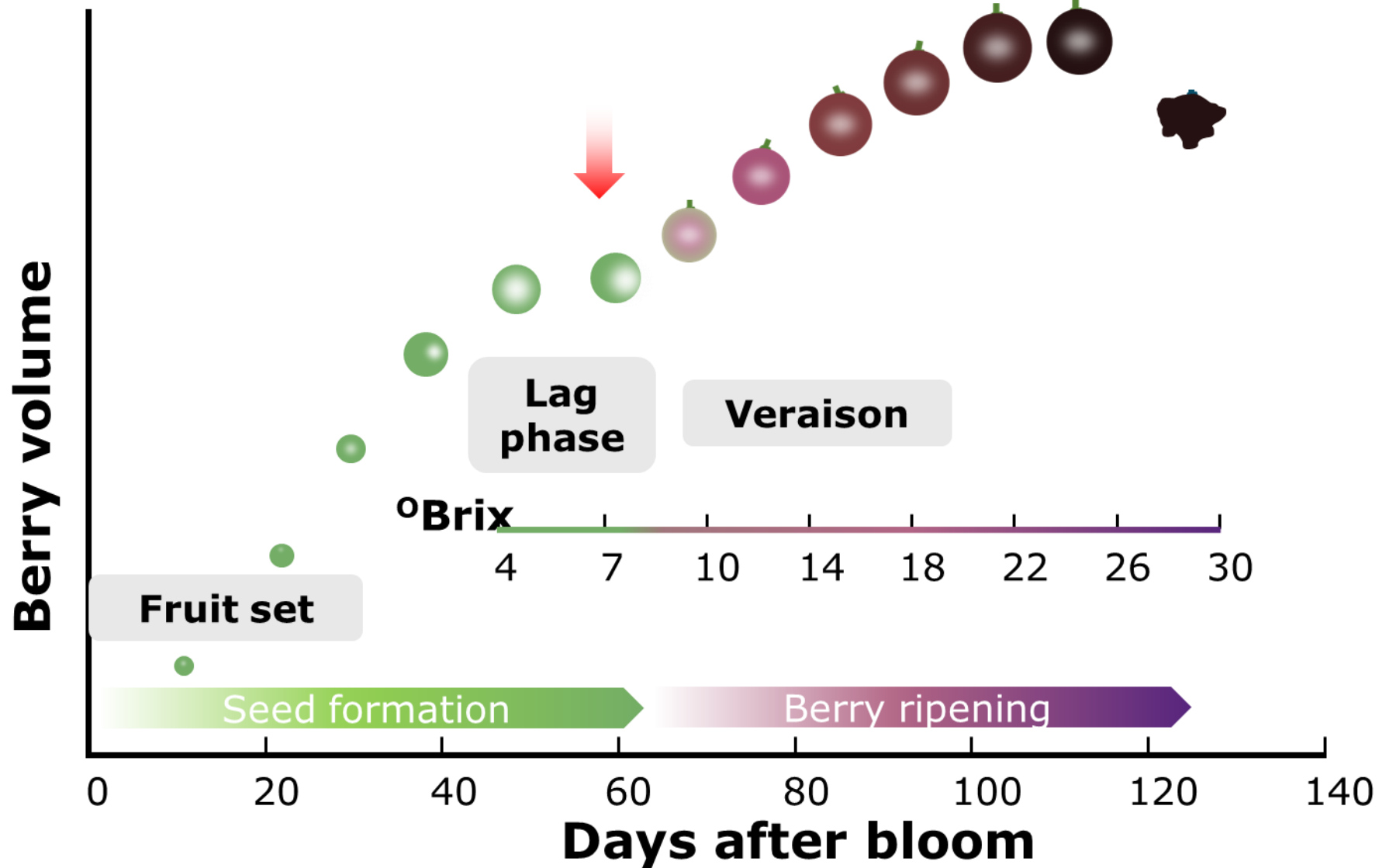
Tolerance through trauma

Stilbenes



Jan.

Reminder!



Adapted from Coombe (2001)

Jan.

Leaf plucking

The 1.5 tick canopy



Photos by Mewael Kiros Assefa



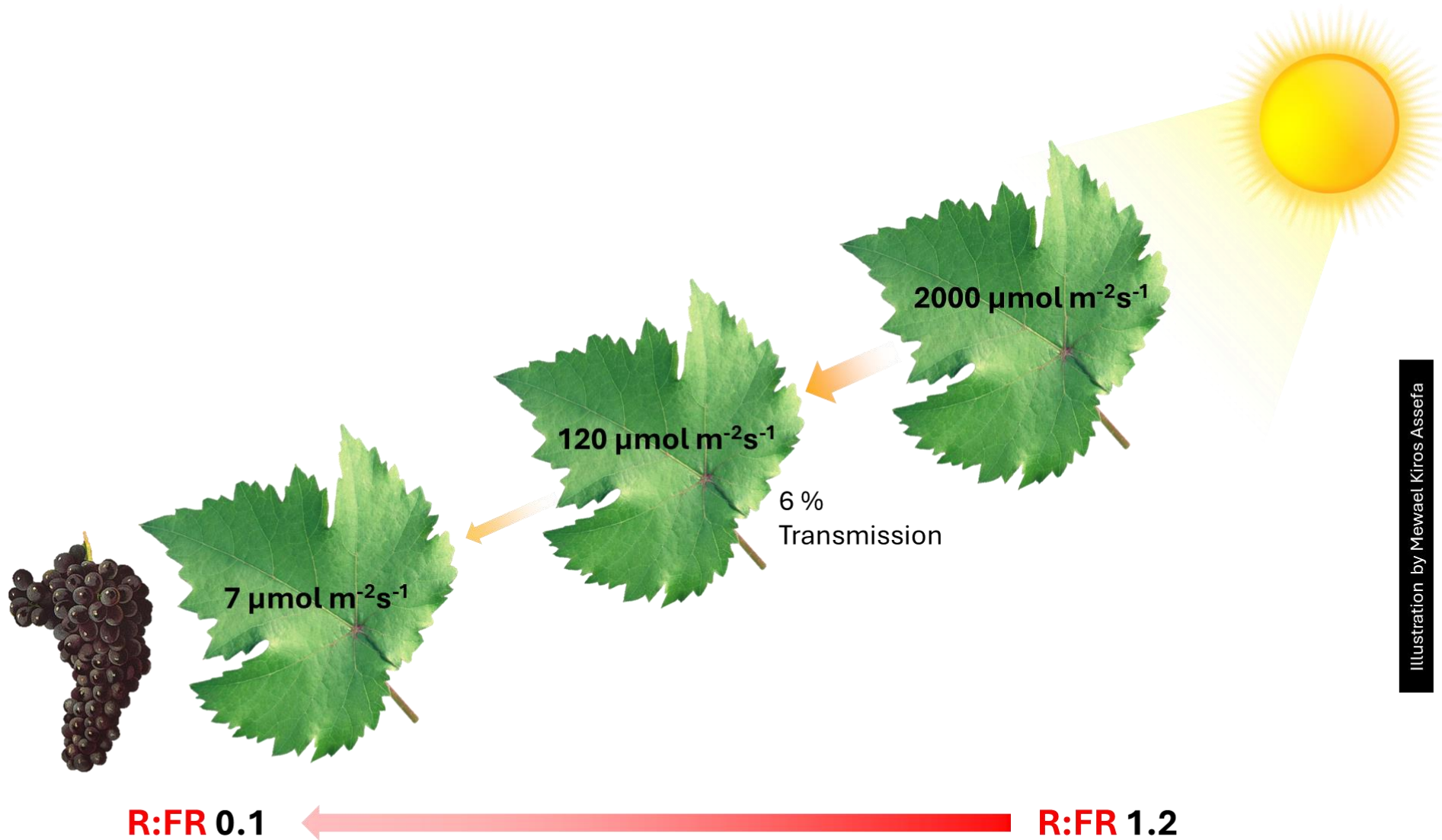


Illustration by Mewael Kiros Assefa

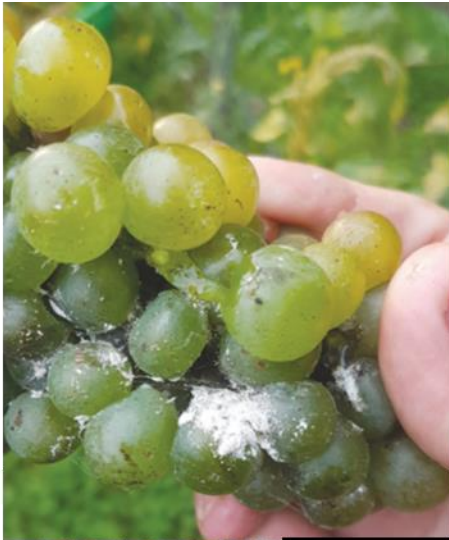
Jan.

Mealybug and Leafroll virus



Spraying

Leaf roll virus has **no cure** remove and replace



Photos by New Zealand Winegrowers



Jan.

Bird netting



Photos
Mewael Kiros Assefa





Photos Mewael Kiros Assefa



Photos Mewael Kiros Assefa

Jan-Feb.

Fruit thinning



Photos by New Zealand Winegrowers



Photo Mewael Kiros Assefa



Photos New Zealand Winegrowers



Photos Mewael Kiros Assefa





Photo: Mewael Kiros Assefa

Fruit thinning at bunch closure (4-Cane VSP, 12 nodes per cane, 12 main leaves per shoot)

Fruit removed (%)	Yield	TSS at harvest (°Brix)
control	5.97 ^a	19.8 ^b
50%	3.38 ^b	23.0 ^a

(Parker et. al., 2015)

Veraison: the race begins

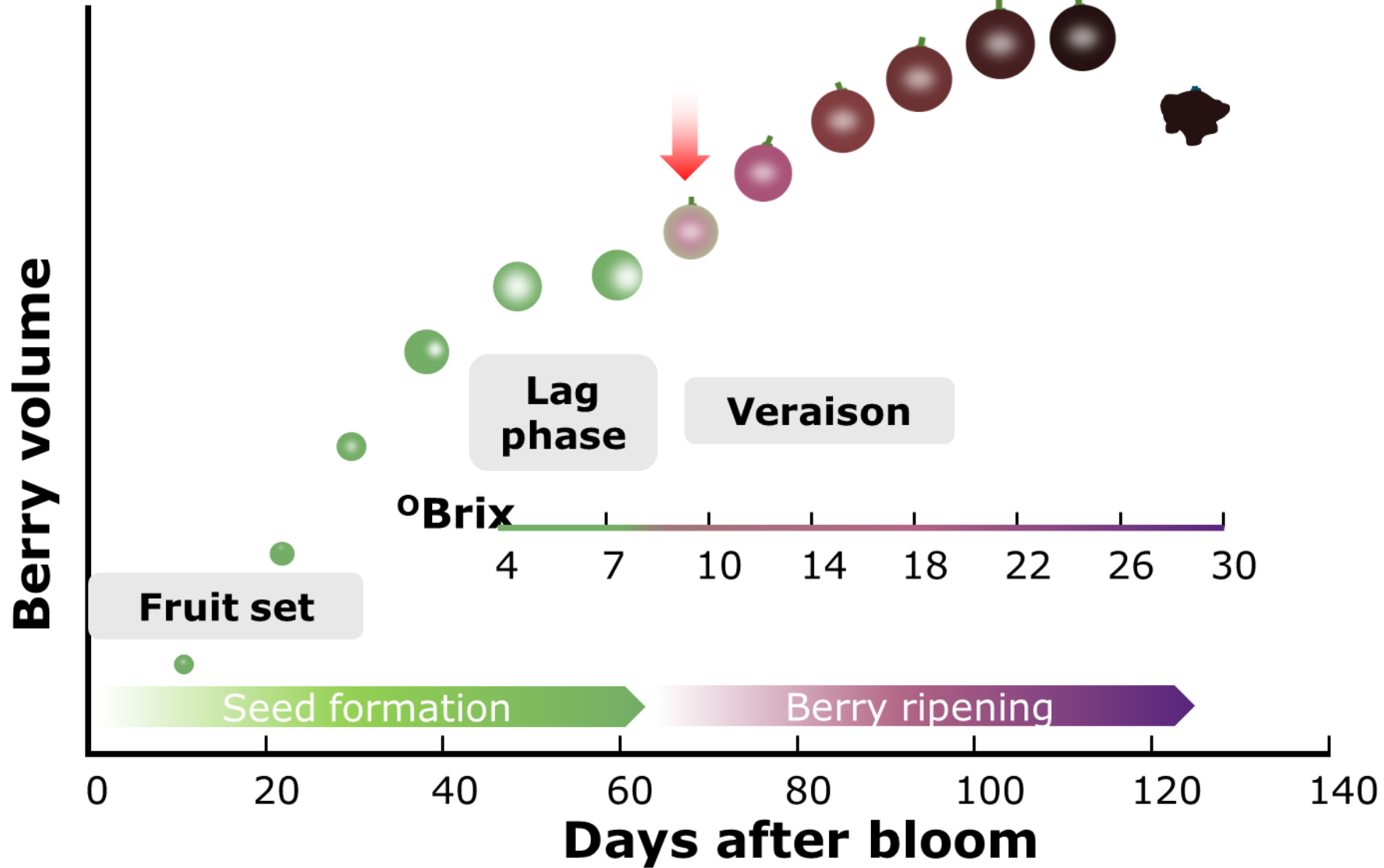
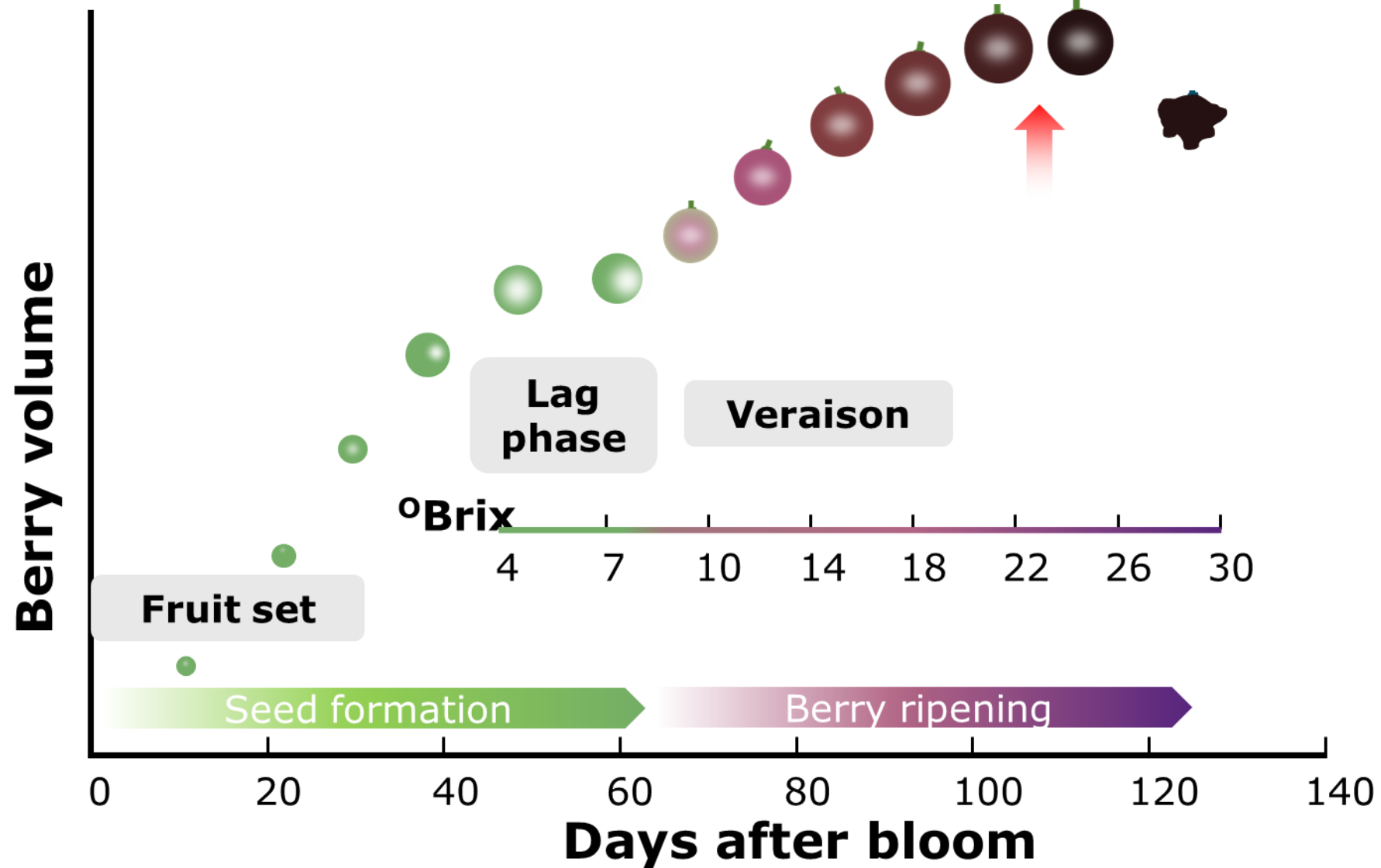




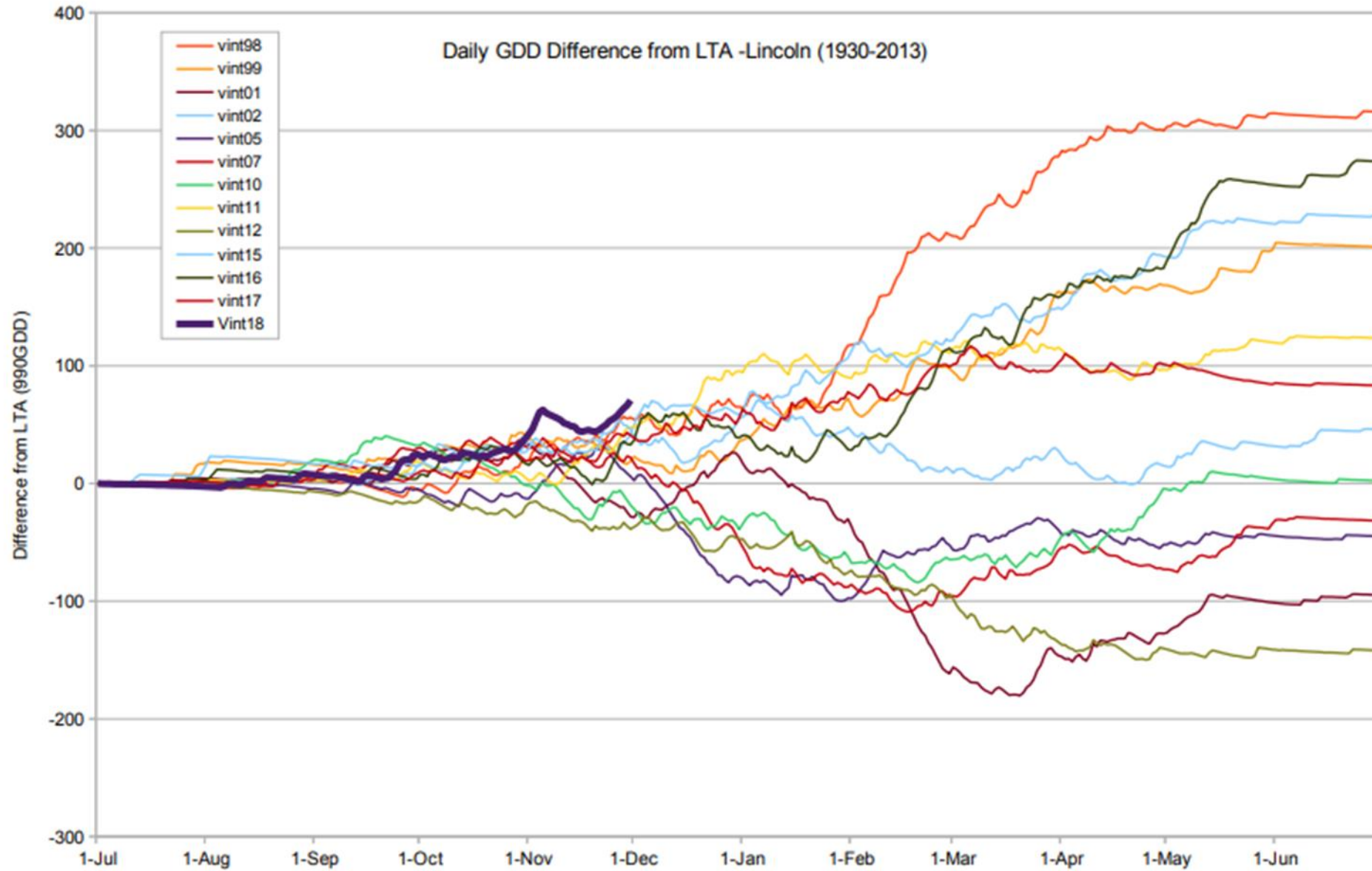
Photo by Mewael Kiros Assefa

Mar. – Apl.

Pre-harvest: final adjustments



Adapted from Coombe (2001)



Lincoln University

Mar. – Apl.

Pre-harvest: final adjustments



Photo by Mewael Kiros Assefa

Apr.

Harvest and winemaking



Photo by Mewael Kiros Assefa



Photos Mewael Kiros Assefa

Grown and made with care



Sauvignon blanc



Pinot noir

Thank you!