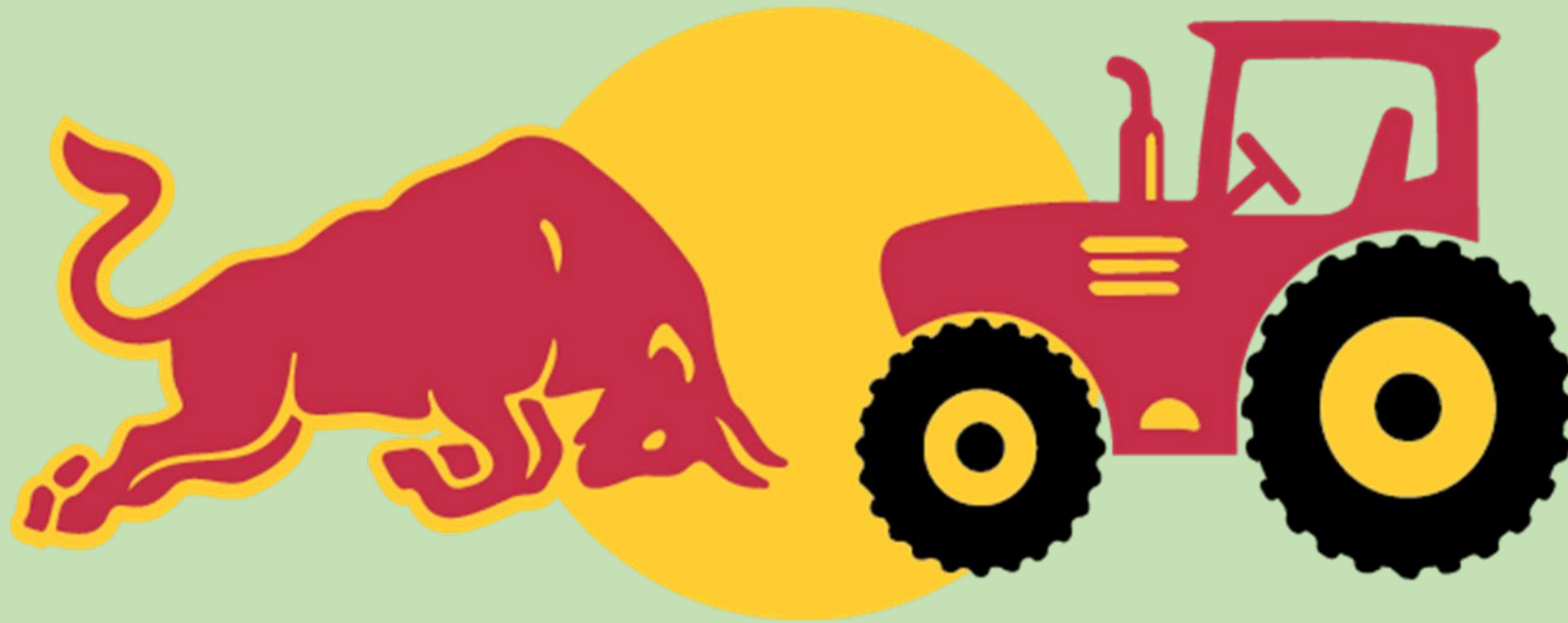


Regenerative Agriculture



What is new, what is fresh, what is old news?

Regenerative agriculture is a conservation and rehabilitation approach to food and farming systems. It focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, enhancing eco-system services, supporting biosequestration, increasing resilience to climate change, and strengthening the health and vitality of farm soil. **Wikipedia**

6 Core Principles of **REGENERATIVE AGRICULTURE**



So What?



- We are complicating it for ourselves as we want a fixed set of rules/boxes we can tick to prove/certify that we are regenerative.
 - We have been applying most of these RA principles for many years.
 - Exception being the incorporation of animals (ruminants) into our farming systems.
 - What real difference can animals make, to make the effort worthwhile?
 - Post-modern farming?
 - John Robinson – philosophical/marketing outlook
 - Set of Values
 - Produce
 - Enhance/add value
 - Conserve
 - Sustain
 - Improve
- Supermarket mystery meat → Finest Kind Terroir Steak
- Dry white wine → Wonderboom Super Deluxe Chenin blanc

Organic vs Regenerative farming

- Organic farming is a prescriptive standard for the production of food. While stating the intention to promote ecological balance and conserve biological diversity, the system does not endeavour to rebuild or regenerate the soil.
- In order for a farmer, or food processor to market their product as “organic,” they must prove to a certifier that they followed all organic regulations. These rules dictate what practices and substances can and can’t be used. For example, organic farmers cannot use seeds that have been genetically engineered. They also cannot use most synthetic fertilizers or pesticides.
- Regenerative agriculture is about principles, not practices. It focuses on outcomes — actual improvements to soil health and the overall quality and health of the land (the soil, water, plants, animals and humans).
- Regenerative agriculture is an adaptive management approach that is supported by soil health principles. There is no recipe or prescription because each farm or ranch differs based on unique natural resources, climate variability, and animal and ecological dynamics. Producers apply those principles for their particular region, operation and personal situation.
- This freedom for producers to make decisions on their land is important. Allow them to be financially successful / profitable.

Lets get practical

- Alan Savoury – Holistic Management. No sustainable healthy eco-system without animals
- Barbara von Wechmar – ‘Our problems started when the animals disappeared from our farms.’
- Regenerative Viticulture
 - Jamie Goode: Book & YouTube video
 - Principles
 - Cover crops and management, mulching
 - Reduction in tillage
 - Weed control strategies
 - Dealing with disease
 - Incorporation of animals (ruminants)
 - Best cultivar terroir combinations – climate, water
- Keywords from the video
 - Eco-system
 - Holistic
 - Intelligent
 - Journey

Cattle Basics

- Ruminants – cattle, sheep, goats are prerequisite for regenerative agriculture recognition.
- Animals requires additional management time and effort.
- Passion for and understanding of animals.
- Meat, like wine is terroir specific.....
- Ideal herd size 10-12 animals (cattle). Two or more herds possible if grazing allows it.
- Use the animals that you have, or have a passion for.
- Starting from scratch..... get Dexters.
- Dexters
 - Small framed
 - Good temperament
 - Good feed conversion rate
 - Excellent quality meat
 - Building a premium quality meat brand - Vineyard Dexters
 - Ten Oxen Model

Cover Crop Management

- Cover crops must include cereals and N-binders (medics, clovers, etc.)
 - Animal's nutritional requirement – no supplementary feed should be required
 - Biodiversity increase as nutritional value of certain weeds (turknael, koperdraad) are exploited
- Programme partly a fodder flow programme
 - Grazing of cover crops from mid June to end September
 - Early budding blocks grazed first etc
 - Some blocks left to re-seed on its own, allows for earlier vineyard grazing (May)
- Summer grazing – determines the number of animals the farm can sustain. Own herd preferred as animals know the system. New/wild animals need time to adapt
 - Hartenberg – winter = 200 animals, summer = 45 animals
- Impact grazing
 - Animals moved every 2-3 days.
 - 2-3 grazings/block/season
 - 1st grazing when cover crop is 30-40cm high
 - Animals out when vines start budding – enough time for regrowth
 - Grazing keep cover crops in vegetative stage – increase in vegetative material production
 - Enough plant material left at end of the season to ensure soil surface is covered during summer
 - Enough food – no damage to the vines, rare break-outs

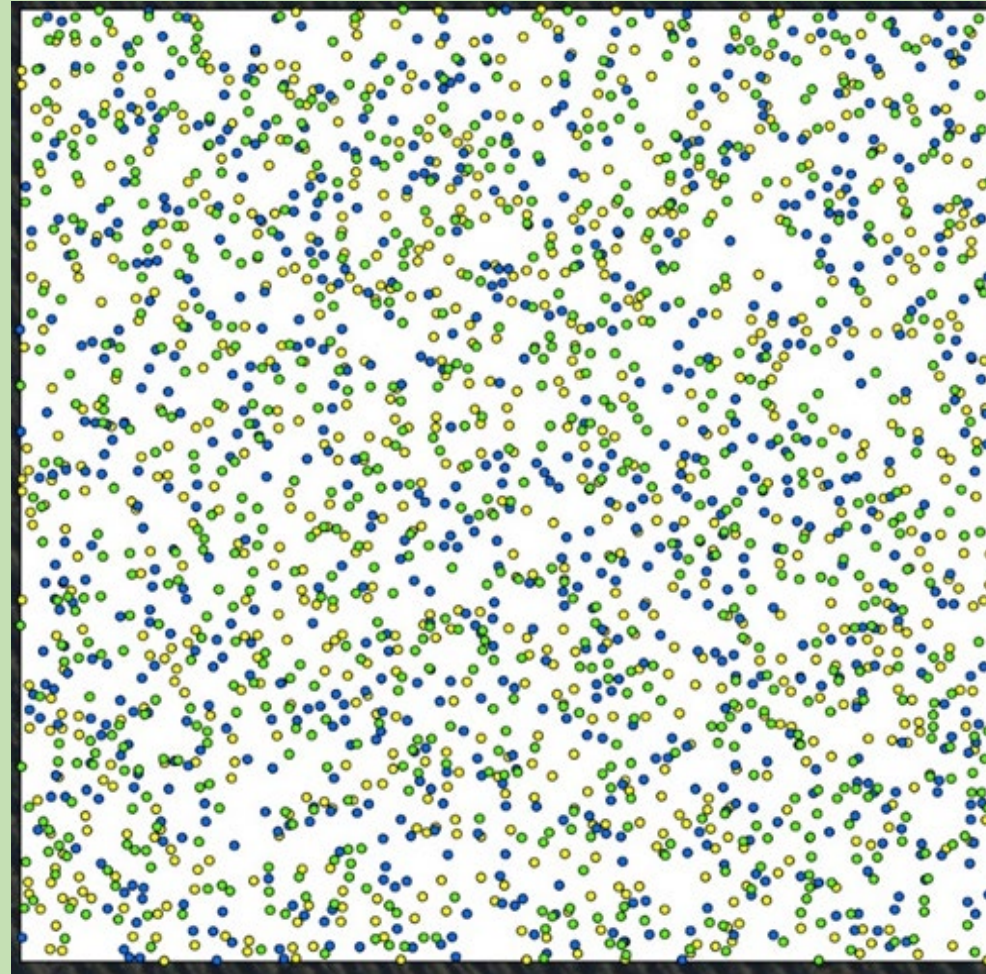
General Notes

- Compaction
- Animals are management tools to be used as required e.g.
Clearing fire breaks
Controlling problem weeds
- Assist with seed distribution and in breaking dormancy
- Selective use of herbicides when necessary (kweek) / manual removal
- Animal diversity – birds, dung-beetles, snails.....
- Water
- Input costs – fuel, herbicides
- Phycological effect

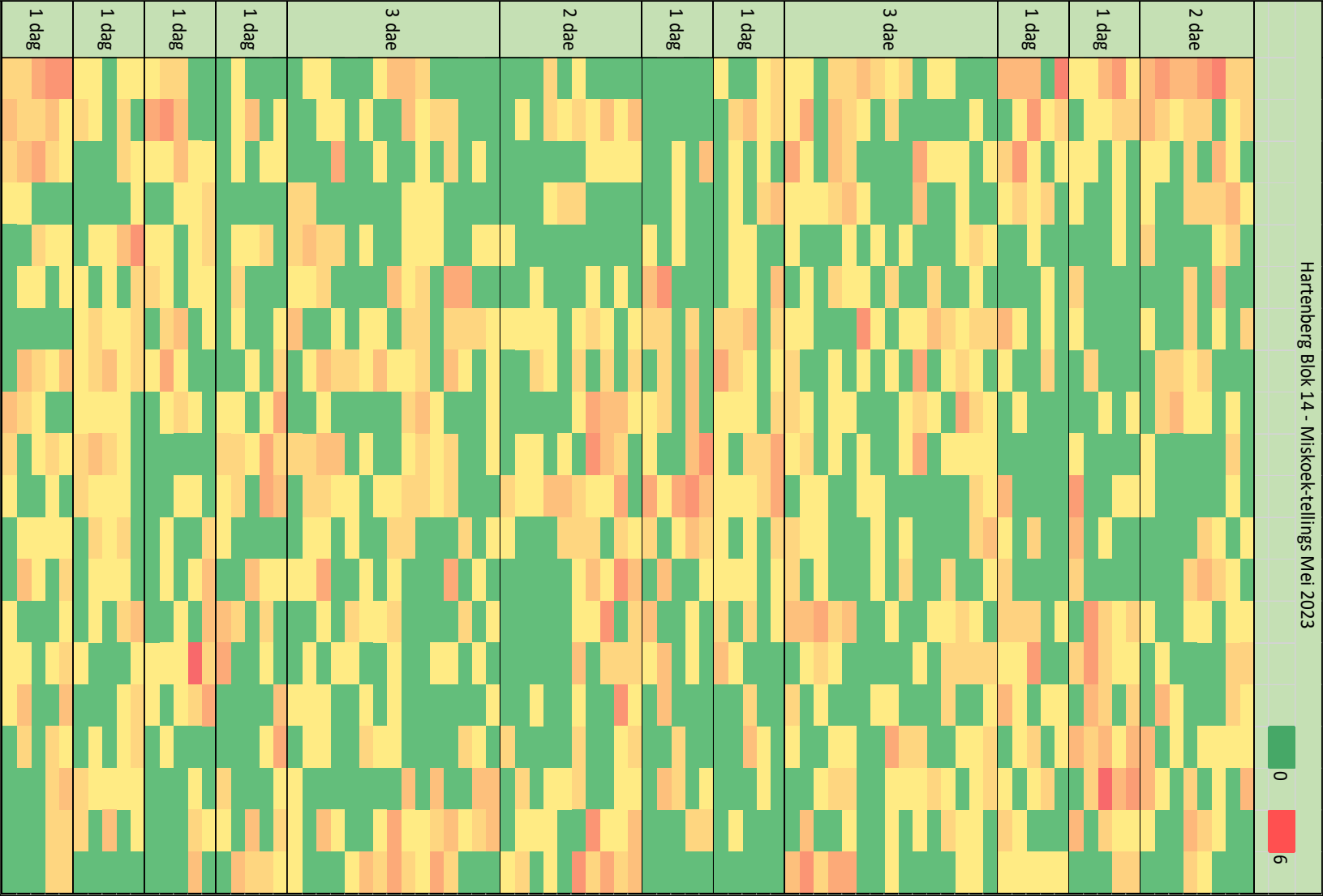
Cattle manure and urine distribution

computer generated image

- 120 Cattle days/ha
- 13 Manure positions/day = 25kg wet manure/day
- 13 Urine positions/day = 13L urine/day
- 50% overlap
- 2340 contact points/ha = 2,3/10m²



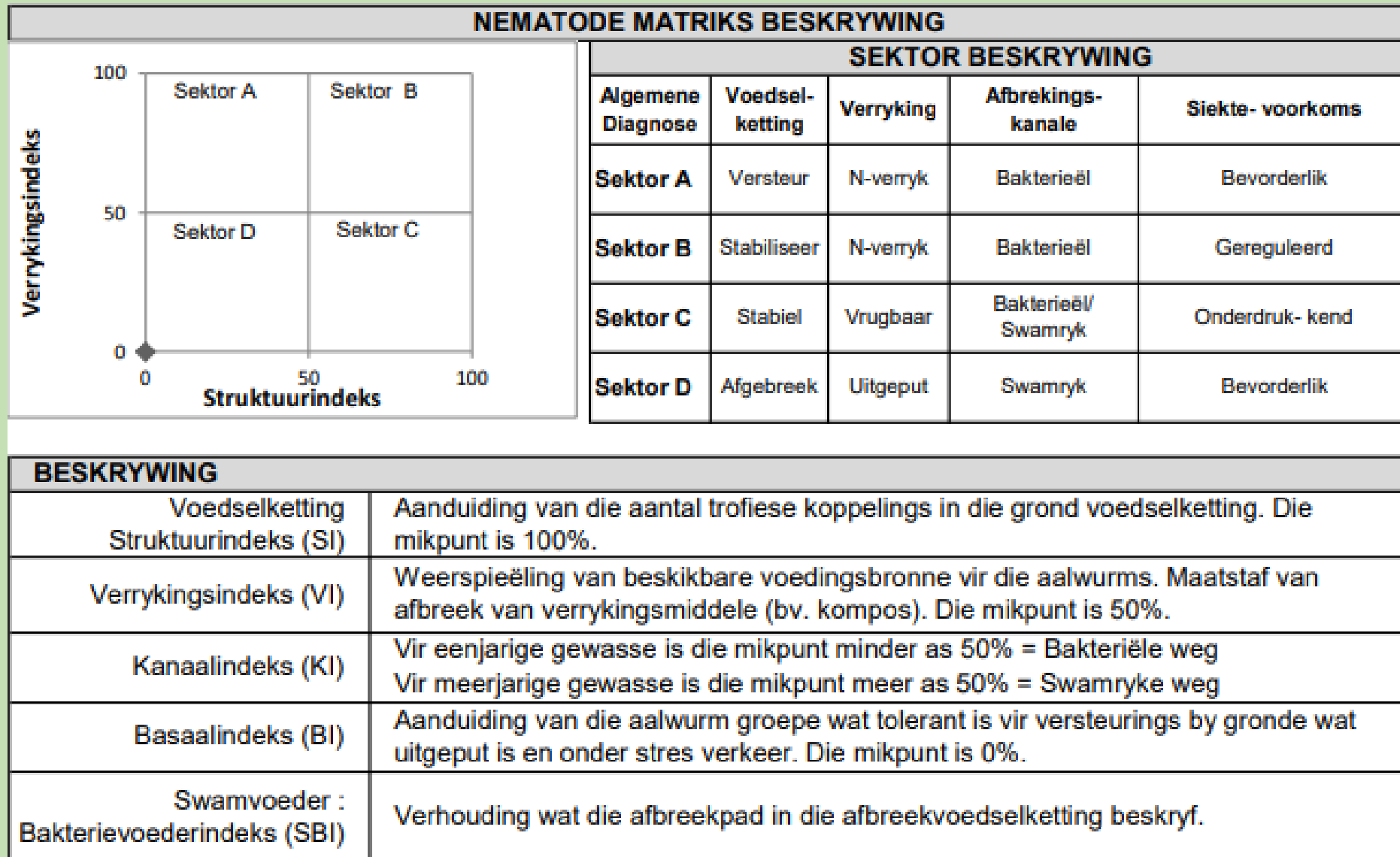
Cattle-patty distribution: 78 cow days/ha, May 2023



Soil Biology

- Regenerative agriculture generally places undue prominence on soil biology
- Soil physical problems e.g. compaction, waterlogging and chemical problems e.g. acidity, salinity must first be rectified to ensure healthy biology.
- Effects of grazing on fruit and wine quality not to be underestimated
Very little control vs treatment information available, except maybe C
Normally just WOW!!
- Nematodes as indicators of soil health
Relatively easy
Time of sampling
Testimony to complexity of soil life
- Measurable differences experienced within 6 months
Urine and rumen fluid
Composition NPK, hormones, metabolites - influence on plant growth
Auxins
- Meet om te weet vs analysis paralysis

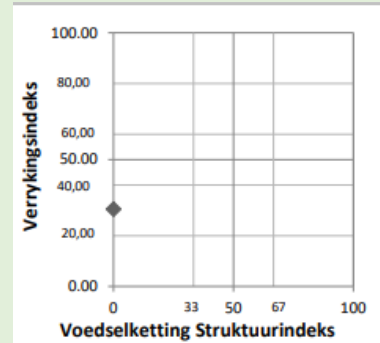
Nemlab Nematode Matriks



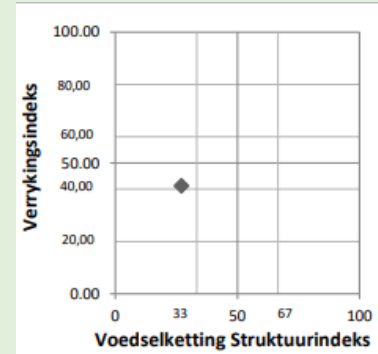
Nemlab grondgesondheid – Blok 21 Shiraz Kontrole

April 2022

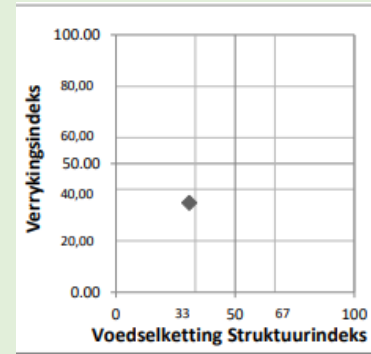
Kontrole 1



Kontrole 2

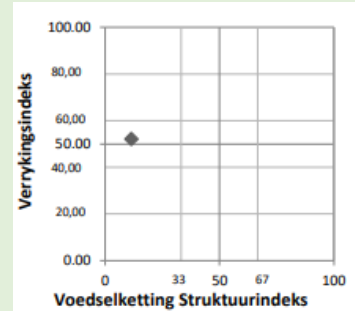


Kontrole 3

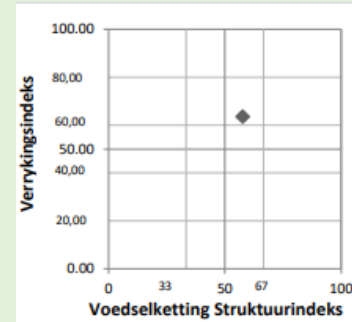


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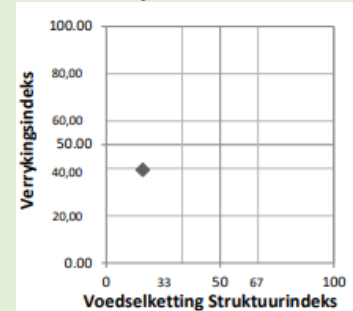
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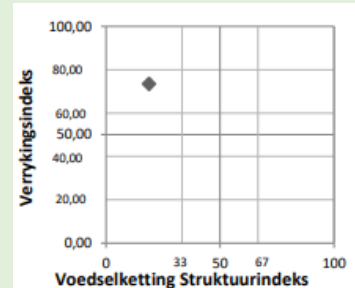


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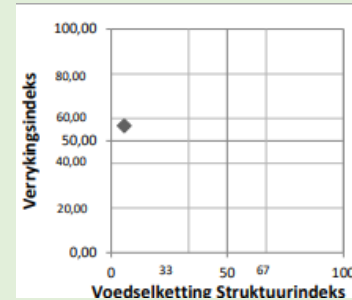


Mei 2023

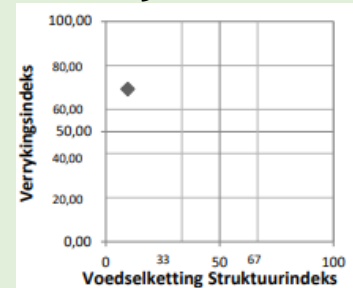
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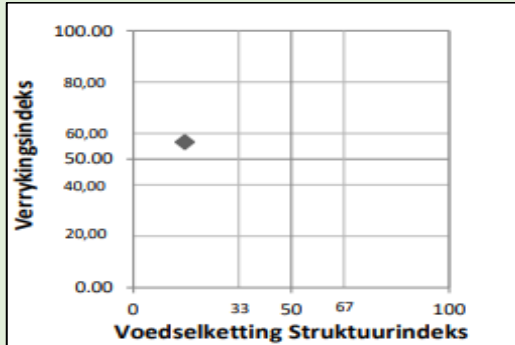
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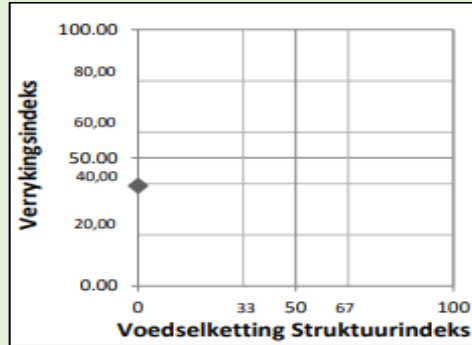
Nemlab grondgesondheid Blok 21 Shiraz Beeste

April 2022

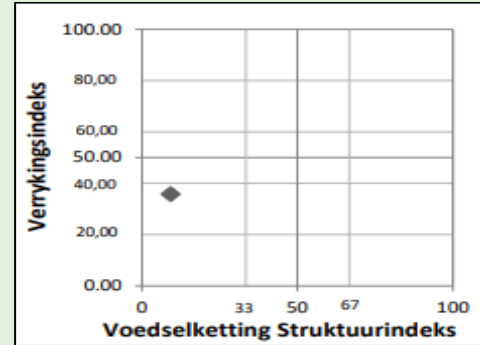
Beeste 1



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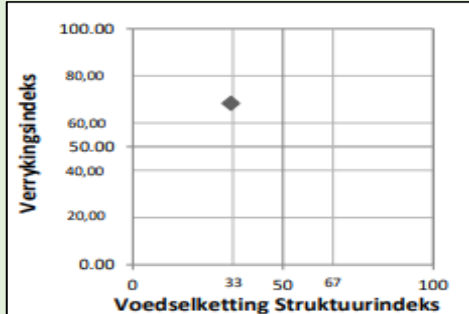


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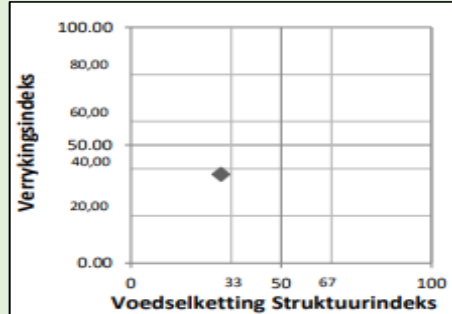


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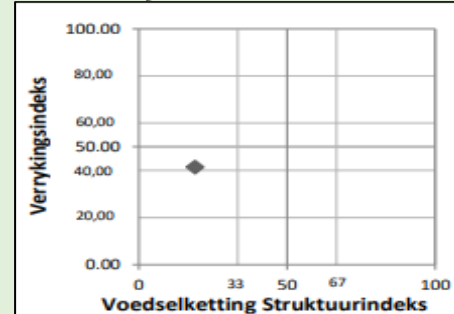
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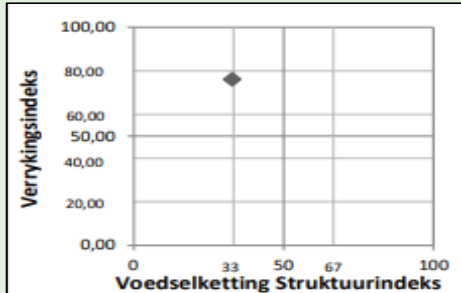


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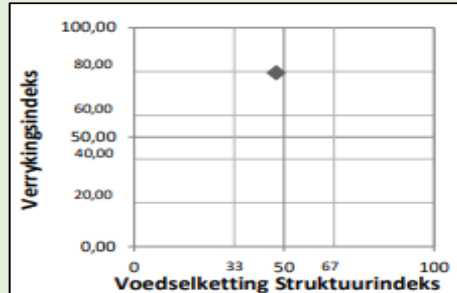


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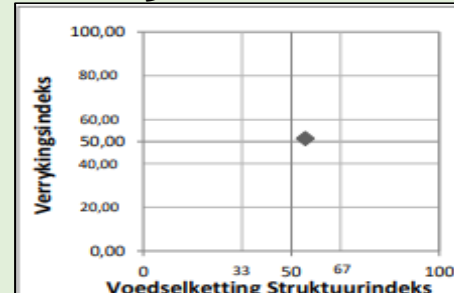
Beeste 1



Beeste 2



Beeste 3



Nematodes as soil health indicators

BIODIVERSITEIT	Gemidd Kontr Apr		Gemidd Kontr Okt		Gemidd Beeste Apr		Gemidd Beeste Okt	
VOEDINGSGROEPE	Aantal	%	Aantal	%	Aantal	%	Aantal	%
Plant-parasiete	222	33	864	24	240	18	371	9
Bakterie-voeders	217	30	1977	46	624	46	2406	57
Swam-voeders	131	18	688	16	392	27	785	20
Omnivoor voeders	21	2	121	4	16	2	204	5
Aalwurm predatore	4	1	15	0	0	0	14	0
Worteleksudaat voeders	96	15	327	9	120	7	350	9
TOTAAL	690		3993		2420		4130	

Use what is available



Dexter cattle are well suited for grazing in vineyards



Before and after



Weeds and Biodiversity



Before and after - intensive weed control



Grazing vs weed control



Before and after – proliferation of weeds



Seed distribution and dormancy



Change in small steps



N-deficient system - plant reaction to manure and urine



Increase in bird life

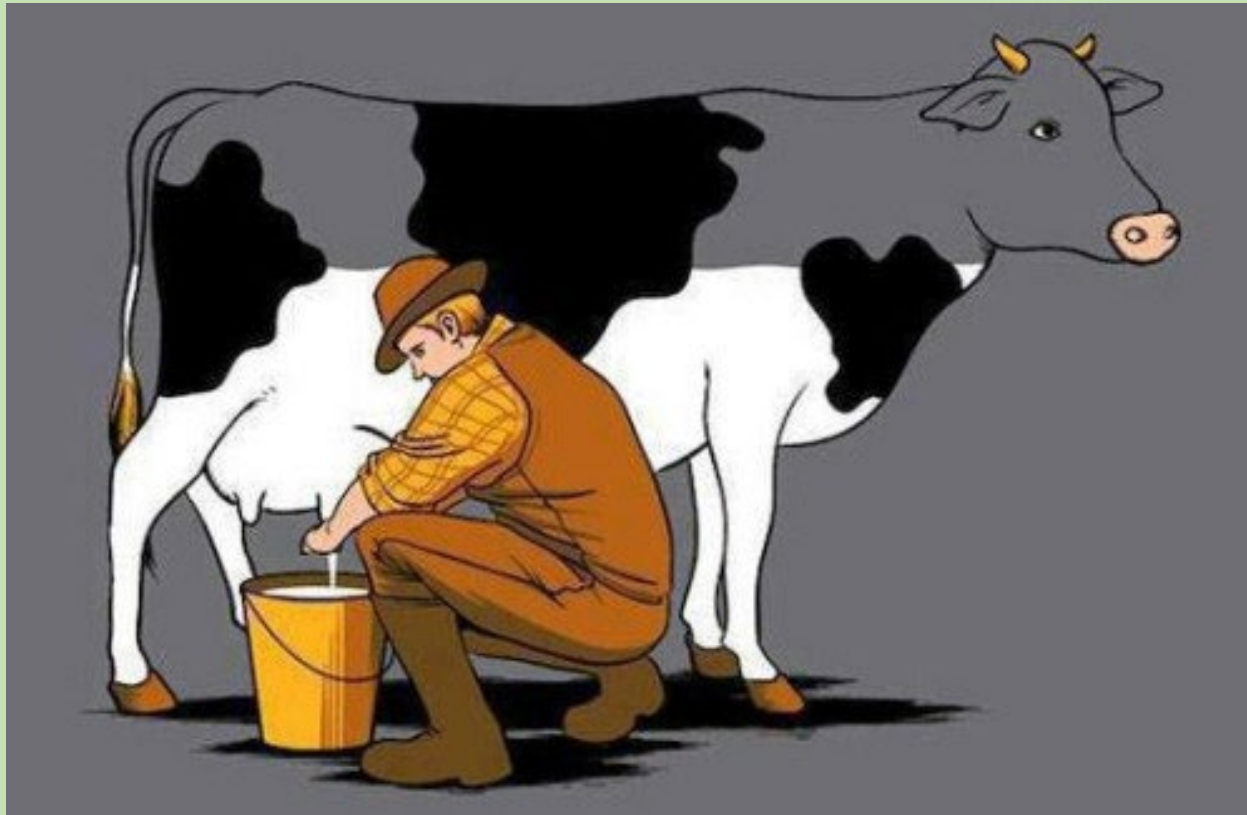


Notes from the Winemaker

- Carl Shultz (Hartenberg Wynmaker) is beslis daaroor dat dit te vroeg om besliste afleidings te maak, maar hulle besef nou dat die twee lotte twee verskillende wyne maak.
- Die druiwe uit die beweide deel van die wingerd se totale suur was 7,5g/L , teenoor 5,4g/L van die kontrole druiwe.
- Fisiologiese rypheid is op n laer suiker gekry. Almal streef na laer suikers, maar gewoonlik is die druiwe dan nog nie ryp genoeg nie. Met fisiologiese rypheid teen 'n Balling of twee laer, sal die gevolglike alkohol ook laer wees.
- Die “beweide” wyn se antosianien vlakke was hoër is, wat dui op beter kleur en die polifenole was laer, wat teoreties beteken die wyn gaan 'n bietjie sagter wees.
- Waar die wyn uit die beweide deel van die wingerdblok meer elegant, varser en rooivrug gedrewe is, is die kontrole gedeelte (onbewei) weer swaarder en ernstiger met sweempies van donker vrugte.

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6 Core Principles of **REGENERATIVE AGRICULTURE**

