

2026 UPCOMING EVENTS

1. 5 - 6 AUGUST: CAWC JACK HUMAN WEEK
2. 13 AUGUST: OVERBERG AGRI
HERKOUERSDAG - ROODEBLOEM
3. 20 AUGUST : SSK WINTER CEREAL DAY -
RIVERSDALE
4. 26 AUGUST: SKOG DAY LANGGEWENS
5. 18 SEPTEMBER: HOPEFIELD
WATERBOERSKRAAL
6. 23 SEPTEMBER: OVERBERG AGRI
ROODEBLOEM BOEREDAG



blwk - cawc

MAY 2026

Inhoud/Contents

BLWK/nuusbrieff CAWC/newsletter

VOORWOORD/PREFACE

LINKS OF THE MONTH	2
INVISIBLE ALLIES	5
HIDDEN THREATS	9
DIVERSIFICATION PAYS	13

Hallo almal

Die plantseisoen was vanjaar 'n interessante ervaring. Oor die algemeen lyk die gewasse goed, al het sommige areas ná planttyd te veel reën gekry. Ek vra omverskoning vir die lang tyd tussen nuusbriewe — die seisoen het eenvoudig met my weggeloop. Ek hoop jy vind iets nuttig in hierdie uitgawe.

Neem asseblief kennis van ons jaarlikse konferensie in Augustus.

Groete van huis tot huis.

Hello everyone

Planting season has been an interesting affair this year. For the most part, the crops are looking good, even though some areas got drenched following planting. I apologise for the long time between newsletters. The season just ran away with me. I hope you find something useful in the edition.

Please take note of our annual conference in August.

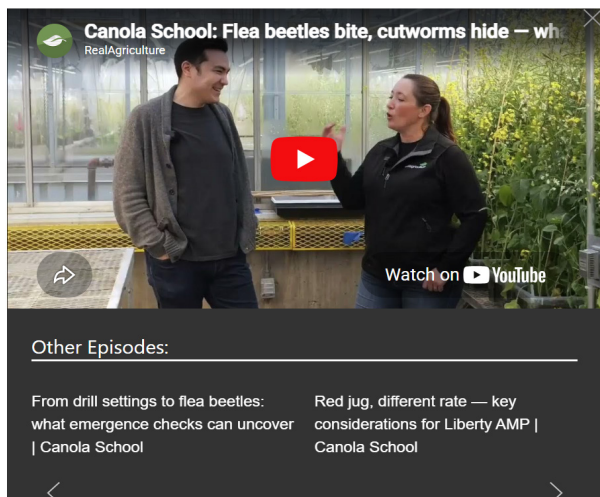
All the best.

Prof Johann Strauss
Redakteur/Editor

02



LINKS OF THE MONTH



Canola School: Flea beetles bite, cutworms hide — what growers need to know



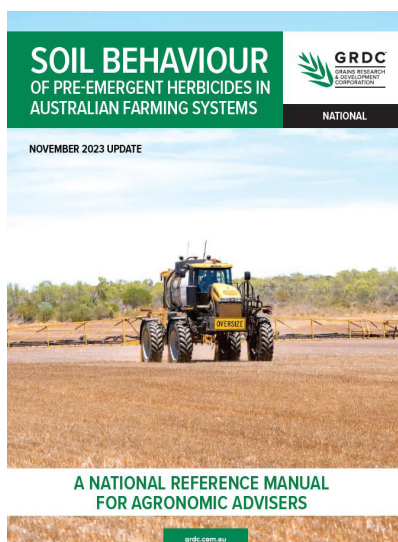
The Negative Effects of Tilling the Soil



GRDC Grains Research Update, online – Spreading your fertiliser budget further



Herbicide safety and weed management in pulses



Soil behaviour of pre-emergent herbicides in Australian farming systems

[Resources](#) / [Articles](#) / [Ask an Expert](#) / [Residuals that don't lock up your rotation in the northern region](#)

Residuals that don't lock up your rotation in the northern region

February 23, 2026

Author



Cindy Benjamin

Residuals that don't lock up your rotation in the northern region



Gene identified that could triple wheat yields



ARTICLES

INVISIBLE ALLIES



What if the future of sustainable agriculture, healthier diets, and even environmental protection depended on something you can't see?

That's exactly what scientists are discovering: vast, invisible communities of microorganisms—known as **microbiomes**—are quietly shaping everything from the soil beneath our feet to the food on our plates to the microbes living inside our bodies.

This summary is based on an article that appeared in *Frontiers in Science*.

A HIDDEN WEB CONNECTING SOIL, FOOD, AND PEOPLE

The article reveals that microbiomes are not isolated. Instead, they form a **single, interconnected network** stretching across the entire food system—from soil and water to crops, animals, food processing, and ultimately the human gut. These microbial communities constantly interact:

- Soil microbes influence plant health
- Plant microbes affect animal diets
- Food microbes can transfer to our gut

This idea forms the basis of the **"One Health" approach**, which sees human, animal, and environmental health as deeply intertwined.

FARMING WITH MICROBES INSTEAD OF CHEMICALS

One of the most exciting findings is how microbiomes could **revolutionise agriculture**. Instead of relying heavily on fertilisers and pesticides, farmers can:

- Use beneficial microbes to **protect crops from drought and disease**
- Improve **nutrient absorption**, such as nitrogen and phosphorus
- Boost **crop yields naturally**

Scientists are even designing **microbial "teams" (consortia)** that help plants survive harsh conditions such as salinity or extreme temperatures.

But the story isn't all positive. Poor practices—like overusing manure or fertilisers—can:

- Spread **antibiotic resistance genes**
- Pollute nearby ecosystems
- Disrupt natural microbial balance

FROM FARM ANIMALS TO FISH FARMS

Microbiomes also play a major role in how animals grow and stay healthy. In livestock:

- The gut microbiome determines how efficiently animals digest food
- It affects **growth rates and methane emissions**
- Diet changes can reshape these microbial communities

In aquaculture (fish farming), microbes:

- Influence fish health and disease resistance
- Affect water quality and ecosystem stability
- Can be managed using probiotics instead of antibiotics

Even oceans are shaped by microbes—and pollution or farming practices can disrupt entire marine ecosystems.

THE MICROBES IN YOUR FOOD

Your food isn't sterile—and that's not necessarily a bad thing. Fruits, vegetables, and fermented foods carry their own microbiomes. These can:

- Help preserve food naturally
- Prevent spoilage using "friendly" microbes
- Influence the microbes in your gut

However, modern food systems create a paradox:

- Advanced processing improves safety and shelf life
- But it also removes many beneficial microbes

This may contribute to declining diversity in the human gut microbiome.

DIET, GUT MICROBES, AND HEALTH

Your diet has a powerful effect on your internal microbiome—and your health.

The research highlights that:

- A **diverse gut microbiome** is linked to better health
- Western diets (high in sugar, fat, processed foods) can reduce this diversity
- This imbalance is associated with diseases like obesity and gut disorders

In contrast:

- **Fibre-rich and plant-based diets** support beneficial microbes
- **Fermented foods** (like yoghurt) can introduce helpful bacteria
- **Prebiotics and probiotics** can actively improve gut health

TINY VIRUSES WITH A BIG ROLE

Surprisingly, viruses that infect bacteria—called **bacteriophages**—are also key players. They can:

- Control harmful bacteria
- Support food safety
- Influence how microbial communities evolve

But they can also disrupt processes such as fermentation by attacking beneficial bacteria.

THE FUTURE: A MICROBIOME REVOLUTION

Thanks to cutting-edge technologies like DNA sequencing and “omics” tools, scientists can now:

- Map entire microbial ecosystems
- Track how microbes move through the food system
- Design targeted microbiome-based interventions

THE POTENTIAL BENEFITS ARE HUGE:

- More sustainable farming
- Reduced food waste
- Improved food safety
- Better human health

CHALLENGES AHEAD

Despite the promise, there are still hurdles:

- Many microbial interactions are **not fully understood**
- Translating lab discoveries into real-world solutions is difficult
- Regulations and standards for microbiome-based products are still developing

WHY THIS MATTERS

The big takeaway?

Microbes aren't just passengers in the food system—they are **active drivers of sustainability, health, and resilience**.

By learning to work with these invisible partners instead of against them, we could reshape how we produce food, protect the environment, and care for our own bodies.

In simple terms: Protect the microbes, and they might protect us.





BLWK/CAWC JACK HUMAN WEEK 2026

LESINGDAG
5 Augustus 2026

Percheron Saal,
Elsenburg Agricultural
Training Institute, Elsenburg

PRAKTIESE DAG
6 Augustus 2026

Langgewens-
navorsingsplaas
Moorreesburg



08:00 – 08:50
Registrasie en koffie

08:50 – 09:00
Opening
Prof. Johann Strauss
Wes-Kaapse Departement van Landbou

09:00 – 09:40 (40 minute)
Prof. Sarita Bennet
Ekologie en bestuur van Sclerotinia-stamvrot in
kanola: Insigte uit Wes-Australië

09:45 – 10:25 (40 minute)
Dr. Jason Brand
Peulgewasse – ontdek jou plaas se juweel

10:30 – 11:00 (30 minute)
Paneelbespreking met jong boere

11:00 – 11:30 (30 minute)
Koffie/tee en iets soet

11:30 – 12:10 (40 minute)
Dr. Vicky Tolmay
Meer as wat die oog kan sien:
Die wêreld van kleingraanplantluise

12:15 – 12:45 (30 minute)
Prof. Leon van Rensburg
Die Grondgesondheidstelkaart:
Meting van grondinfrastruktuur om
akkurate boerdery moontlik te maak

13:00
Afsluiting en middagete

08:00 – 08:50
Registrasie en koffie

09:00 – 09:10
Opening
Prof. Johann Strauss
Wes-Kaapse Departement van Landbou

09:10 – 09:40
Beweeg na proefferreine

09:45 – 12:45
Besoek die proewe

Oes-onkruidsaadbeheer
Kaylen van Wyk

Onkruidonderdrukking
Jade Hans

Onkruidbestuur in
medics
Rens Smit

Kanola-spuitproef
Charl Lambrechts

Vergelyking van
kontantgewasse
en medic-stelsels
Rebecca Ellerbeck

13:00
Middagete



**KOOP JOU KAARTJIES
AANLYN OP
QUICKET**





Jack Human- bewaringslandbouweek

— WAAR NAVORSING IN DIE VELD GESTALTE KRY —

*Moenie dit
misloop nie!*



LESINGDAG

Woensdag
5 Augustus 2026

Percheronsaal, Elsenburg
08:00 - 13:00



PRAKTIESE DAG

Donderdag
6 Augustus 2026

Langgewens-navorsingsplaas,
Moorreesburg 08:00 - 13:00



Koffie/tee en middagete ingesluit

Jack Human- Conservation Agriculture Week

— WHERE RESEARCH IN THE FIELD TAKES SHAPE —



BUY YOUR TICKETS ONLINE

HIDDEN THREATS



Modern agriculture depends heavily on pesticides to protect crops and ensure food production.

But a growing body of research reveals a troubling reality: these chemicals may be harming far more than the pests they're designed to kill.

A sweeping global study brings this issue into sharp focus, showing that pesticides—whether aimed at insects, weeds, or fungi—**have far-reaching and often damaging effects across entire ecosystems.**

Based on an article published in Nature Communications

A GLOBAL LOOK AT AN INVISIBLE PROBLEM

Scientists examined over **1,700 studies and more than 20,000 measurements** of pesticide impacts across the planet, covering animals, plants, and microorganisms. The findings were striking:

- Pesticides consistently harmed **non-target species**—organisms they weren't meant to affect
- Negative impacts appeared across **land and water environments**
- Effects were observed at all **levels of the food chain**

In short, the chemicals designed to protect crops are also quietly reshaping ecosystems.

EVERY LAYER OF LIFE IS AFFECTED

The study shows that pesticides can disrupt life in multiple ways, depending on the organism.

ANIMALS

- Reduced **growth and reproduction**
- Altered **behaviour**, such as feeding or movement
- Disrupted **nervous systems and metabolism**

Even pesticides targeting insects affected unrelated species, such as amphibians and birds.

PLANTS

- Slower **growth and reproduction**
- Damage to **photosynthesis and cellular processes**

MICROORGANISMS

- Declines in **growth and reproduction**
- Disruption of **key biochemical processes**

These impacts matter because microorganisms drive soil fertility, plants feed animals, and animals support ecosystems. When one level is disturbed, the effects ripple outward.

A DOMINO EFFECT THROUGH ECOSYSTEMS

One of the most important insights is that pesticide impacts don't stop at individual species. Because ecosystems are interconnected:

- Killing beneficial insects can reduce pollination
- Damaging microbes can affect soil health
- Changes can cascade through **food webs**, causing secondary effects

This means pesticides can indirectly weaken entire ecosystems—even when applied in small amounts.

MORE CHEMICALS, MORE DAMAGE

The study also found a clear pattern: **The higher the pesticide dose, the stronger the negative effects.** As application rates increase:

- Animal growth, reproduction, and behaviour decline further
- Plant performance worsens
- Microbial health deteriorates

This reinforces a key message: even if pesticides seem safe at low levels, increasing use amplifies ecological harm.

LAND OR WATER—NOWHERE IS SAFE

Surprisingly, the negative effects were **similar in both terrestrial and aquatic systems.** Whether chemicals enter rivers through runoff or remain in soils, organisms are exposed—and affected.

A GLOBAL PATTERN WITH LOCAL DIFFERENCES

The researchers also discovered that:

- Effects tend to be **stronger in temperate regions** than tropical ones
- But harmful impacts occur **everywhere**

This suggests climate influences how pesticides behave, but does not eliminate the risk.

EVEN “MODERN” PESTICIDES AREN'T SAFER

One reassuring idea has been that newer pesticides are designed to be more environmentally friendly.

However, the study found **no strong evidence that newer products are less harmful than older ones.**

This challenges the assumption that innovation alone can solve the problem.

THE HARD TRADE-OFF: FOOD VS BIODIVERSITY

Pesticides are widely used because they:

- Increase crop yields
- Protect food supply
- Support farmers' livelihoods

But they also carry hidden costs:

- Loss of biodiversity
- Damage to ecosystem functions
- Long-term environmental risks

Reducing pesticide use is not simple—but continuing as usual may be even riskier.

RETHINKING AGRICULTURE

The study points toward more sustainable solutions:

- **Integrated Pest Management (IPM)**—using fewer chemicals and smarter strategies
- Crop diversification and ecological farming
- Development of **“green” pesticides** with lower environmental impact

These approaches aim to balance productivity with ecological protection.

THE BIGGER PICTURE

The key takeaway is clear: Pesticides don't just target pests—they affect entire living systems.

From microscopic bacteria to birds and mammals, the impact spans the full web of life. And because these systems are interconnected, even small disruptions can grow into large-scale ecological changes.

IN SIMPLE TERMS:

Pesticides may help us grow more food—but they could also be quietly undermining the very ecosystems that agriculture depends on.





BLWK/CAWC JACK HUMAN WEEK 2026

LECTURE DAY
5 August 2026

Percheron Hall,
Elsenburg Agricultural
Training Institute, Elsenburg

PRACTICAL DAY
6 August 2026

Langgewens
Research Farm
Moorreesburg



08:00 – 08:50

Registration and coffee

08:50 – 09:00

Opening

Prof Johann Strauss
Western Cape Department of Agriculture

09:00 – 09:40 (40 minutes)

Prof Sarita Bennet

Ecology and management of
Sclerotinia stem rot in canola:
Insights from Western Australia

09:45 – 10:25 (40 minutes)

Dr Jason Brand

Pulses – discovering the gem of your farm

10:30 – 11:00 (30 minutes)

Panel discussion with young farmers

11:00 – 11:30 (30 minutes)

Coffee/tea and something sweet

11:30 – 12:10 (40 minutes)

Dr Vicky Tolmay

More than meets the eye:
The world of small grain aphids

12:15 – 12:45 (30 minutes)

Prof Leon van Rensburg

The Soil Health Scorecard: Measuring soil
infrastructure to enable accurate farming

13:00

Closing and lunch

08:00 – 08:50

Registration and coffee

09:00 – 09:10

Opening

Prof Johann Strauss
Western Cape Department of Agriculture

09:10 – 09:40

Move to trial sites

09:45 – 12:45

Visit the trials

Harvest weed seed
control

Kaylen van Wyk

Weed suppression

Jade Hans

Managing weeds in
medics

Rens Smit

Canola spray trial
Charl Lambrechts

Comparing cash crops
and medic systems
Rebecca Ellerbeck

13:00

Lunch



**BUY YOUR TICKETS
ONLINE ON
QUICKET**





Jack Human Conservation Agriculture Week

WHERE RESEARCH IN THE FIELD TAKES SHAPE

Do not
miss out!



LECTURE DAY

Wednesday
5 August 2026

Percheron Hall, Elsenburg
08:00 - 13:00



PRACTICAL DAY

Thursday
6 August 2026

Langgewens Research Farm,
Moorreesburg 08:00 - 13:00



Coffee/tea and lunch included

Jack Human- Conservation Agriculture Week

WHERE RESEARCH IN THE FIELD TAKES SHAPE



BUY YOUR TICKETS ONLINE

DIVERSIFICATION PAYS



Long-term research at Langgewens shows that diversification is about more than yield—it is about reducing risk.

Based on a scientific article published in the South African Journal of Plant and Soil.

Farmers in the Western Cape have always farmed under challenging conditions. Rainfall is unpredictable, droughts occur regularly, and input costs continue to rise. In such an environment, the question is no longer how to achieve the highest yield, but how to maintain consistent production year after year.

A 17-year study conducted at the Langgewens Research Farm near Moorreesburg has provided valuable insights into this challenge. The research shows that crop rotations that include greater diversity and livestock integration can significantly improve yield stability while maintaining grain quality.

LOOKING BEYOND YIELD

Traditionally, farming systems have often been compared based on average yield alone. However, a system that delivers a high yield one year and a poor yield the next may be financially riskier than a system with slightly lower but more consistent production.

Researchers evaluated eight crop rotation systems between 2002 and 2019 under Swartland conditions. The systems ranged from continuous wheat production to more diversified rotations that included canola, lupins, annual medics, clovers and livestock grazing.

The aim was to determine whether greater diversification could improve crop performance and reduce year-to-year variability.

MEASURING DIVERSIFICATION

To quantify diversification, the researchers developed a Functional Diversification Index (FDI). This index considered factors such as:

- The number and diversity of crops in the rotation
- The inclusion of pasture and forage phases
- Livestock integration
- Weed and disease management opportunities
- Soil disturbance levels
- Residue cover and soil protection

The higher the FDI score, the more diversified the farming system.

THE MOST DIVERSE SYSTEM PERFORMED BEST

The results were striking.

The most diversified system combined wheat with saltbush, annual medics, clover and sheep grazing. This system achieved the highest diversification score and the most stable yields over the 17 years.

Yield stability was measured using the coefficient of variation (CV). Lower values indicate less fluctuation between seasons.

The diversified livestock-integrated system had a CV of approximately 17%, whereas the wheat monoculture system had a CV of more than 41%.

In practical terms, this means that diversified systems were far more resilient to seasonal variability and weather extremes.

CANOLA IMPROVES WHEAT PERFORMANCE

The study also highlighted the value of canola as a break crop.

Replacing even a single wheat phase with canola improved long-term wheat performance compared with continuous wheat production. Rotations containing canola generally produced higher wheat yields and reduced some of the risks associated with monoculture production.

This confirms what many producers have observed in practice: break crops help interrupt disease cycles, improve weed management options and enhance overall system performance.

LIVESTOCK ADDS VALUE

One of the most interesting findings was the positive effect of livestock integration.

Systems that included annual medics, clovers and grazing sheep consistently produced wheat with higher protein levels. In South Africa, grain protein content plays a major role in determining wheat grade and market value.

The study found a clear increase in protein content with greater diversification, particularly when pasture phases and livestock were incorporated.

This suggests that mixed crop-livestock systems can improve not only yield stability but also grain quality.

BUILDING HEALTHIER SOILS

The research also identified soil organic carbon as one of the most important drivers of wheat performance.

Soil organic carbon is widely recognised as an indicator of soil health. Higher levels improve water infiltration, moisture retention and nutrient cycling—critical benefits in the Mediterranean climate of the Western Cape.

The study showed that diversified systems and conservation agriculture practices are closely linked to improvements in soil organic carbon, helping explain their superior long-term performance.

A PRACTICAL MESSAGE FOR FARMERS

One of the most important conclusions from the research is that farmers should not evaluate systems on average yield alone.

When two systems produce similar average yields, the system with the lower year-to-year variability is likely to offer greater financial stability and lower production risk.

In a region where annual rainfall can vary dramatically, stability may be just as valuable as maximum production.

THE FUTURE OF CONSERVATION AGRICULTURE

The Langgewens trial is one of the longest-running conservation agriculture experiments in South Africa and continues to provide important insights for producers.

The findings reinforce the three key principles of conservation agriculture:

- Minimise soil disturbance
- Maintain permanent soil cover
- Increase crop diversity

The research demonstrates that these principles work best when implemented together rather than individually.

THE BOTTOM LINE

After 17 years of data collection, the message is clear: diversification matters.

Systems that combine crop diversity, pasture phases and livestock integration are better equipped to cope with seasonal variability, maintain grain quality and reduce production risk.

For Western Cape grain producers facing an increasingly uncertain climate, diversification is not simply an environmental practice—it is a practical business strategy that can improve resilience and long-term sustainability.

As weather variability continues to increase, the ability to produce stable yields year after year may become one of the most valuable assets on any farm.

