



KANTOR HANDBOOK

YOUR PERFECT MATCH FOR UNBEATABLE PERFORMANCE

2022



Compatibility and safety



Coverage and protection



Uptake and security



Programme flexibility





Welcome to our Kantor Handbook

Kantor is a unique and patented activator adjuvant that brings unbeatable performance to crop protection sprays by removing the physical and chemical constraints that restrict activity and efficacy. Bringing compatibility to tank mixes, reliability in suboptimal application conditions, and versatility in use, Kantor is your perfect match for plant protection programmes this spring to maximise performance and returns.

With increasing resistance, product revocations and rising input costs, optimising the performance of your investment (whether that's cheaper solutions or the most innovative and expensive ones), makes perfect sense. However, challenging application conditions often stand in the way of crop protection active ingredients performing to their maximum potential. Issues typically start in the spray tank, where high pH water can cause the breakdown of some herbicides, fungicides and PGRs. Tank mixing offers flexibility, saves time and may increase pesticide effectiveness, but an incompatible mix resulting from chemical or physical incompatibility can cause downtime, damage to the crop and reduce chemical effectiveness. Spraying also presents a different set of physical variables that impact drift, coverage and retention on the leaf, and can reduce uptake into the leaf. With activity across the tank-mix from tank to tissue, Kantor offers unrivalled adjuvancy power and is your perfect match for programmes this spring.



Stuart Sutherland, Technical Manager at Interagro

“Kantor - your perfect match for unbeatable performance”

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Crop protection challenges

A lot of thought and attention goes into selecting the most appropriate plant protection products and rates to secure plant health and yield, but even the best formulations face performance barriers that can start in the spray tank. Additional weak spots in the spray delivery process present further obstacles to the optimum coverage and uptake required for effective weed, disease and lodging control that can only be overcome with a suitable tank-mix adjuvant:

- 1. Poor mixing increases downtime**
- 2. High pH reduces stability**
- 3. Poor coverage exposes the crop**
- 4. Poor uptake limits success**





1. Poor mixing increases downtime and threatens efficacy and crop safety

The addition of multiple products to the spray tank is a routine step in the spray operation for most spray operators. Whilst tank-mixing chemicals improves efficiency, an incompatible mix can cause antagonism and reduce efficacy in the field. Incompatibility can be caused by physical or chemical properties, cold temperatures, incorrect mixing order, or the water source and is not always visible unless there is a build up of residue on nozzle filters or severe blockage in the tank or lines. However, only plant protection products fully dissolved in the spray tank will perform to their potential in the field so it is crucial mixing is thorough and complete, for efficacy and crop safety.



2.

High pH reduces stability in the spray tank and effectiveness in the field

The pH of water is independent to hard water and can negatively affect the stability of some crop protection active ingredients. See table 1 (below) which shows the optimum pH for some key active ingredients and the impact of different spray water pH on their stability. The pH of water indicates its acidity or alkalinity and is measured on a scale of 1 to 14. A neutral pH is 7. Most water has a pH between 6.5 and 8. Water above 7 is alkaline and water below 7 is acidic.

Alkaline water can break down some chemicals through a process called alkaline hydrolysis. The longer a mixed chemical is left in the tank prior to spraying, the greater the breakdown – it is not recommended to leave spray mixes overnight.

Reduced product performance may not be obvious. In some cases, the influence of water on the crop protection product reduces its effectiveness only slightly, yet enough that tolerant or tough-to-control weeds, insects and diseases are poorly controlled.

Table 1. The effect of pH on the rate of breakdown of pesticide active ingredients in the spray tank

Pesticide active ingredient	Optimum pH	pH 8-9	pH 6-8	pH 4-6
Azoxystrobin (f)	6	Rapid breakdown	Slow breakdown	Slow breakdown
Beta-cyfluthrin (i)	7	Rapid breakdown	Slow breakdown	Slow breakdown
Clethodim (h)	6	Slow breakdown	Slow breakdown	Rapid breakdown
Cypermethrin (i)	4	Moderate breakdown	Slow breakdown	Slow breakdown
Dicamba (h)	5.5	Rapid breakdown	Slow breakdown	Slow breakdown
Dimethomorph (f)	6	Rapid breakdown	Slow breakdown	Slow breakdown
Ethephon (pgr)	5	Rapid breakdown	Moderate breakdown	Slow breakdown
Fenoxaprop (h)	7	Slow breakdown	Slow breakdown	Moderate breakdown
Gibberelic acid (pgr)	6	Moderate breakdown	Slow breakdown	Moderate breakdown
Glyphosate (h)	5	Moderate breakdown	Slow breakdown	Slow breakdown
Indoxacarb (i)	7	Slow breakdown	Slow breakdown	Slow breakdown
Mancozeb (f)	7	Slow breakdown	Slow breakdown	Rapid breakdown
Metsulfuron-methyl (h)	7	Slow breakdown	Slow breakdown	Moderate breakdown
Spinosad (i)	7	Slow breakdown	Slow breakdown	Rapid breakdown
Thifensulfuron-methyl (h)	7	Slow breakdown	Slow breakdown	Rapid breakdown
Tribenuron (h)	7	Slow breakdown	Slow breakdown	Rapid breakdown
Trinexapac-ethyl (pgr)	7	Moderate breakdown	Slow breakdown	Slow breakdown

(f) = fungicides
 (i) = insecticide
 (h) = herbicide
 (pgr) = plant growth regulator

Slow breakdown
 Moderate breakdown
 Rapid breakdown

3.

Poor coverage exposes the crop to weeds and diseases

Spray drift and drift reducing nozzles reduce coverage

Spray drift is a risk to every application and occurs when ultra fine droplets in the spray mixture are carried away by air movement. Spray drift reduces the effective dose and coverage applied and threatens off-targets – some formulations can be particularly drifty. Whilst drift reducing nozzles help reduce drift, they also reduce coverage that can lead to weeds and diseases escaping control.

Crops and weeds can be challenging targets for coverage

Herbicide

Surface characteristics of the leaf influence spreading and retention of the spray solution on the leaf surface. By their very nature, contact post-emergence herbicides must be in complete contact with the weeds they need to control. As weeds get larger the surface area of the weed also becomes greater and coverage across the whole weed becomes vital to prevent re-growth. The spreading and retention of contact herbicides is therefore critical for effective distribution across leaf surfaces as they do not move within plants. However, water (95% of the spray solution) beads on waxy surfaces and is prevented from spreading out due to the high surface tension between water and the waxy surface.

Poor coverage is even more problematic on hairy leaves which can suspend spray droplets above the leaf surface preventing contact. This is why the labels of contact herbicides invariably recommend the addition of a suitable tank-mix adjuvant – they are needed to reduce surface tension and increase the spreading required for effective coverage. This cannot be matched by the spreading ability of in-can adjuvants within herbicide formulations as the spreading ability is fixed by the pesticide recommended rate per hectare. However, tank-mix adjuvant use rates are based on the water volume being used to ensure spreading and coverage can be optimised.

Fungicide

Effective coverage is just as important for disease control as it is for weed control. In fact, when it comes to protectant fungicide applications, its vital yet often compromised without the use of a tank-mix adjuvant to reduce surface tension and facilitate spreading across the leaf. This is because protectant fungicides do not move on the leaf and can only protect the parts of the leaf that the spray covers – they offer zero protection to the parts of the leaf not covered.

This is just as important for ear sprays in wheat, *sclerotinia* sprays in oilseed rape or chocolate spot sprays in beans (to name a few examples) where it is crucial to get fungicide into the nooks and crannies of crops to block invading fungi that will exploit any gaps in protection.



4.

Poor uptake limits success

Thick, waxy leaf cuticles slow uptake

With the exception of protectant fungicides that are adsorbed to the outside of leaf surfaces to protect it, systemic fungicides, post-emergence herbicides and PGRs need to penetrate the leaf cuticle and living tissue inside. Fast penetration and uptake into plant tissue is crucial for curative sprays and active ingredients such as chlormequat, trinexapac and prothioconazole that are metabolically activated. The cuticle is on the upper and lower surfaces of the leaf and is the biggest barrier to crop protection active ingredients. However, as crops / weeds increase in growth stage, cuticles become thicker, and become tougher to penetrate in cold conditions. Crops / weeds which are particularly waxy such as brassicas and fat-hen can be particularly challenging for crop protection active ingredients.

Active ingredient properties influence uptake

The ability of an active ingredient to penetrate the leaf cuticle and plant tissue inside is determined by its chemical properties. Active ingredients with low water solubility (most fungicides, some herbicides - see table 2) are able to penetrate leaf cuticles by simple diffusion through the waxy components, which make up the most part of the cuticle - though this can be slowed in cold/dry conditions. However, mobility through the cuticle for active ingredients with moderate to high water solubility (many herbicides and PGRs - table 2) is much less, resulting in less active being absorbed. Actives with moderate to high water solubility need a suitable adjuvant to penetrate the waxy cuticle in order to increase the flow of active ingredient into the leaf. This is highly relevant for the control of difficult weeds and curative sprays in suboptimal conditions.

The cuticle is highly lipophilic in nature so the higher the water solubility of the active ingredient, the slower the penetration rate into the cuticle.

Active ingredients with high water solubility need an adjuvant to help penetrate leaf cuticles.

Table 2.

Water solubility properties for some common crop protection active ingredients.

Active ingredients	Water solubility at 20°C (mg l ⁻¹)	*Interpretation
Azoxystrobin	6.7	Low
Bentazone	7,112	High
Benzovindiflupyr	0.98	Low
Bixafen	0.49	Low
Boscalid	4.6	Low
Clodinafop	4	Low
Clopyralid	7,850	High
Cycloxydim	53	Moderate
Fenoxaprop	0.43	Low
Fluopyram	16	Low
Fluxapyroxad	3.44	Low
Halauxifen	3,070	High
Imazamox	626,000	High
Iodosulfuron methyl sodium	25,000	High
Mecoprop-p	250,000	High
Mefentrifluconazole	0.81	Low
Mesosulfuron methyl	483	Moderate
Metsulfuron methyl	2,790	High
Nicosulfuron	7,500	High
Prothioconazole	22.5	Low
Tebuconazole	36	Low
Pinoxaden	200	Moderate
Pyroxsulam	3,200	High

Source: University of Hertfordshire. Pesticide properties Database

Kantor

Compatible. Reliable. Versatile.

Kantor is the unique one-can adjuvant solution for compatibility, reliability and versatility that ensures unbeatable performance of your crop protection spray programmes. It's your perfect match!

- ✔ **Makes mixing easy, safe and stable**
- ✔ **Coverage and protection you can count on**
- ✔ **Uptake and security when you need it**
- ✔ **Perfectly suited to your spring spray programmes**



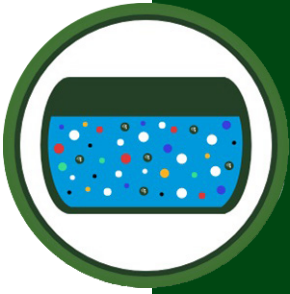




Your perfect match for unbeatable performance

Kantor's unique ability to influence every stage of the spray delivery process makes it a hugely valuable addition to many of the plant protection sprays you'll be making to your crops this spring. With multiple herbicides, fungicides and PGRs often added to the spray tank at the same time in busy springs, it's crucial they mix well together to make sure they perform when, where and how you need them to. With Kantor you can be confident that products applied to the tank are stable, safe and active, and delivered to/inside the leaf/ear where they are needed. It's an unbeatable adjuvant. Make your crop protection sprays unbeatable with Kantor – it's the perfect match for your spring spray programmes.

Makes mixing easy, safe and stable



Promotes tank-mixing

Kantor is the only plant protection tank-mix adjuvant with a built-in micro-emulsifying compatibility aid that helps multiple components of a tank-mix to thoroughly mix together and remain thermodynamically stable in the spray tank – even in cold water. By promoting dissolution of all the mixture partners, Kantor prevents sediment in the spray tank, reduces antagonism between products improving crop safety, and increases the bioavailability of active ingredients for maximum uptake and performance. It's the answer for easy, hassle-free tank-mixing.

Strong pH buffering

Kantor reduces spray water pH, preventing alkaline hydrolysis. This prevents the breakdown of susceptible active ingredients in water above pH7, ensuring stability in the tank and applications remain fast and effective in the field.

Coverage and protection you can count on



Excellent drift reduction and deposition

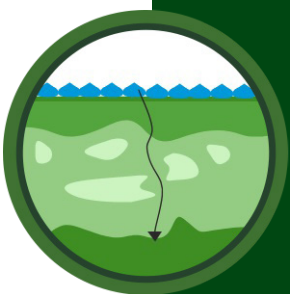
Kantor reduces the number of ultra fine spray droplets prone to drift. It also helps maintain a more uniform droplet spectrum, manipulating droplet size and deposition for optimum coverage and retention. This results in a more targeted application of crop protection sprays to weeds and crop canopies.



Optimum spreading and retention

Kantor reduces surface tension between the spray solution and the leaf/ear surface, enabling crop protection sprays to spread out and be retained. This optimises the coverage and contact between partner active ingredients and the leaf/ear surface for the best protection you can count on.

Uptake and security when you need it



Maximum penetration power

Kantor is the only plant protection adjuvant that can increase the number of entry points at the leaf surface, speeding up cuticle penetration of partner active ingredients into the leaf. Based on a unique patented class of chemistry – the alkoxyated triglycerides – Kantor is three times smaller than most adjuvants which makes it uniquely able to concentrate the number of active ingredient molecules on the leaf surface increasing diffusion into the leaf, for maximum uptake and security when you need it.



Key situations to use Kantor

- ✓ Improve the compatibility and safety of complex tank-mixtures
- ✓ Late autumn, out of winter spraying when water is very cold to help products dissolve in the spray tank
- ✓ Prevent alkaline hydrolysis in high pH water
- ✓ Protect nearby crops sensitive to spray drift
- ✓ Phoma and Light Leaf Spot sprays to optimise coverage and minimise infection in oilseed rape
- ✓ *Sclerotinia* sprays to maximise coverage and protect entry points
- ✓ Strengthen *Septoria* and rust protection at T1 & T2 in wheat
- ✓ Flowering sprays to maximise ear protection and minimise fusarium/rust



Improve bentazone efficacy and maintain safety in peas and beans



Maximise the uptake of ethephon-based PGRs at T2 in cereal crops at risk of lodging and brackling



With drift reducing nozzles to improve coverage



Speed up the activation of metabolically activated ingredients e.g. prothioconazole



Curative sprays to speed up cuticle penetration and maximise uptake into the leaf



Low water volume spraying to maximise coverage



Increase the uptake of chlormequat and trinexapac-ethyl in cool conditions to protect against lodging



Post-emergence herbicide sprays to optimise the coverage of hairy/waxy leaves

Performance in trials



Compatibility

Improved physical compatibility

Kantor's ability to improve the physical compatibility between products and reduce antagonism has been well proven. Being such a popular mix (until the revocation of chlorothalonil in 2020), physical and biological compatibility trials previously focused on the well known antagonism between prothioconazole and chlorothalonil – two of the most widely used fungicides active ingredients in cereals.

Physical compatibility tests were conducted by Staphyt with Boogie Xpro (prothioconazole + bixafen + spiroxamine) and Bravo (chlorothalonil) mixed in a water volume of 80 litres per hectare. The mixture was assessed for the homogenous nature of the mix and sedimentation in the test cylinders 30 minutes and 120 minutes after mixing. After 30 minutes Boogie Xpro + Bravo began to fall out of suspension with 5% sedimentation at the bottom of the cylinder. After 120 minutes and re-dispersal, this had increased to 10%. With the addition of Kantor the mix remained in suspension, even after 2 hours and only 0.1% sediment was observed at the bottom of the cylinders.

Low water volume and cold temperature (4°C)

Product Name	Water Volume	Rate per ha	Static Test of Mixture			Result
			5 mins	30 mins	120 mins	
Boogie XPRO + Bravo	80L	1.5L + 1.0L	H	S ↓ 5%	S ↓ 10% R	Physically compatible
Kantor + Boogie XPRO + Bravo	80L	150ml (0.18%) + 1.5L + 1.0L	H	S ↓ 0.1%	S ↓ 0.1% R	Physically compatible

Abbreviations: H - Homogenous S - Sedimentation ↓ - Direction of sediment R - Re-disperible after 2 hours

Figures represent % mixture at bottom of cylinder. Staphyt, UK.



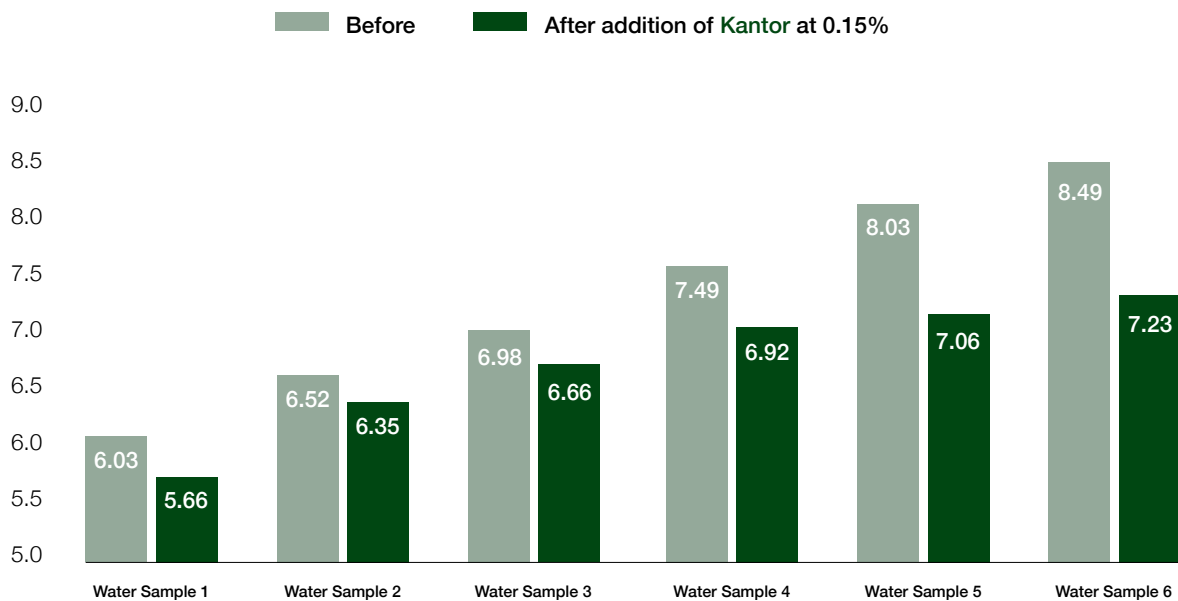
Strong pH reduction



pH Buffering

The effect of Kantor on pH reduction was assessed at Alliance Technical UK in 2020 by testing 6 different water samples with different starting pH. Kantor demonstrated excellent pH reduction with all samples tested and shows that it is a great addition to the spray tank to prevent alkaline hydrolysis and protect the stability of susceptible active ingredients.

Effect of Kantor on pH reduction



Alliance Technical, UK Aug 2020. Ca 147, Mg 11 mg/litre. This gives a total hardness of 165 as Ca, 413 as CaCO₃ (Very Hard)

Improved coverage and deposition

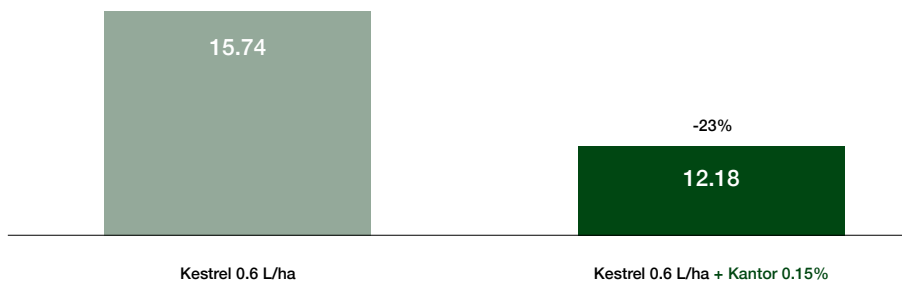


Significant reduction in number of drift prone droplets

The effect of Kantor on droplet size and spray angle uniformity at the nozzle was investigated at Silsoe Spray Applications Unit. Kantor significantly reduced the number of drift prone Kestrel droplets and increased spray angle uniformity at the nozzle.

Effect of Kantor on spray droplet distribution

% spray volume < 100 microns



Source: Silsoe Spray Application Unit UK, 2018. Lurmark 03 F110 Flat Fan, 200 l/ha of water. Measurements made of droplet size distribution using laser diffraction

Kantor drift reduction evident on this farm in Wiltshire

T0 spray



T0 spray + Kantor



Source: Courtesy of grower in Wiltshire in 2015. 40m Bateman sprayer, 1.5 bar pressure, speed 9km/hr, water volume 100 L/ha. T0 application of 4 Yield Extra + Rover + Vareon + Meteor.

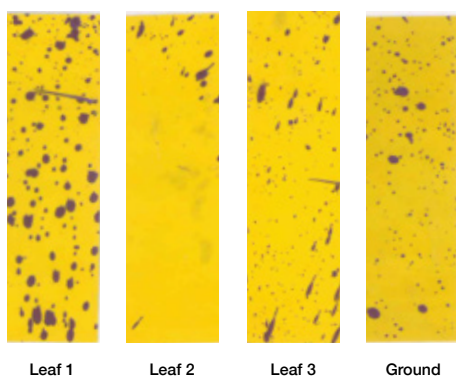
Improved coverage with low drift and flat fan nozzles

A T2 fungicide nozzle trial was conducted in winter wheat cv Solstice looking at the impact of nozzle type and to show spray coverage to the canopy could be improved. Spray deposition papers were pinned to the flag leaf, leaf 2, leaf 3 and ground to capture spray droplets applied to the crop. Whilst drift reducing nozzles are widely used on farm to reduce drift, the coarser spray droplets produced, reduce coverage and this has implications for disease control. Could Kantor help?

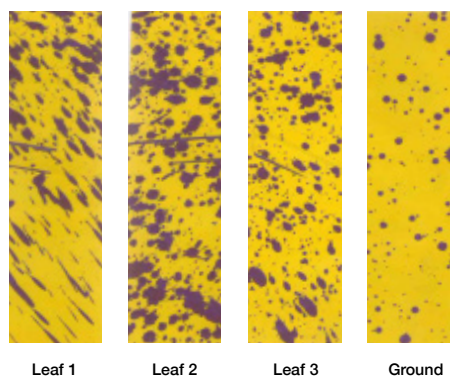
Effect of Kantor spray coverage with ultra low drift nozzle

12kph 100 l/ha Lechler IDK120° 03 air induction coarse spray quality

T2 fungicide programme



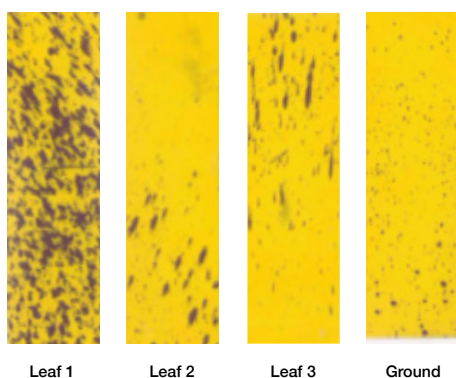
T2 fungicide programme
+ Kantor 0.15%



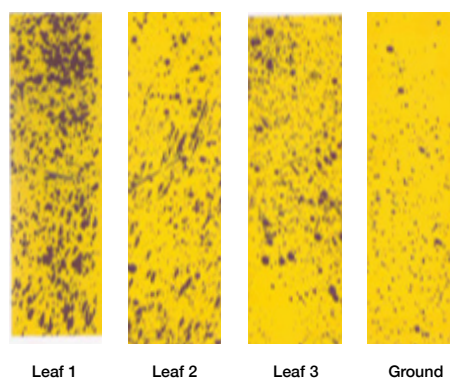
Effect of Kantor spray coverage with standard flat fan nozzle

12kph 100l/ha Lechler LU120° 03 flat fan medium spray quality

T2 fungicide programme



T2 fungicide programme
+ Kantor 0.15%



Key takeaways:

- Low drift nozzles reduce coverage compared to flat fan nozzles
- Coverage on leaf 2 needs to be improved both with low drift and flat fan nozzles
- The addition of Kantor increased coverage on all leaf layers, particularly leaf 2

Improved weed control in Vining Peas

Whilst weed control in peas is best achieved using a pre-emergence herbicide, it may often be necessary to apply a follow up post-emergence spray in dry springs or to control troublesome perennial broad-leaved weeds that have not be controlled well enough pre-emergence. All post-em options except for MCPB have a contact element and therefore peas must be healthy and well waxed to avoid crop safety issues. The addition of Kantor post-emergence adds valuable efficacy benefits and crop safety as shown in 2021 field trials with Birdseye.

2021 field trials – treatment list

Untreated	
Basagran SG	1.1 Kg/ha
Basagran SG + Kantor 0.15% v/v	1.1 Kg/ha + Kantor 0.15% v/v
Basagran + MCPB	800 g/Ha Bentazone + 800g/Ha MCPB
Basagran + MCPB + Kantor 0.15% v/v	800 g/Ha Bentazone + 800 g/Ha MCPB + Kantor 0.15% v/v

Less weeds with Kantor

Effect of Kantor on Basagran SG weed control 5 days after application

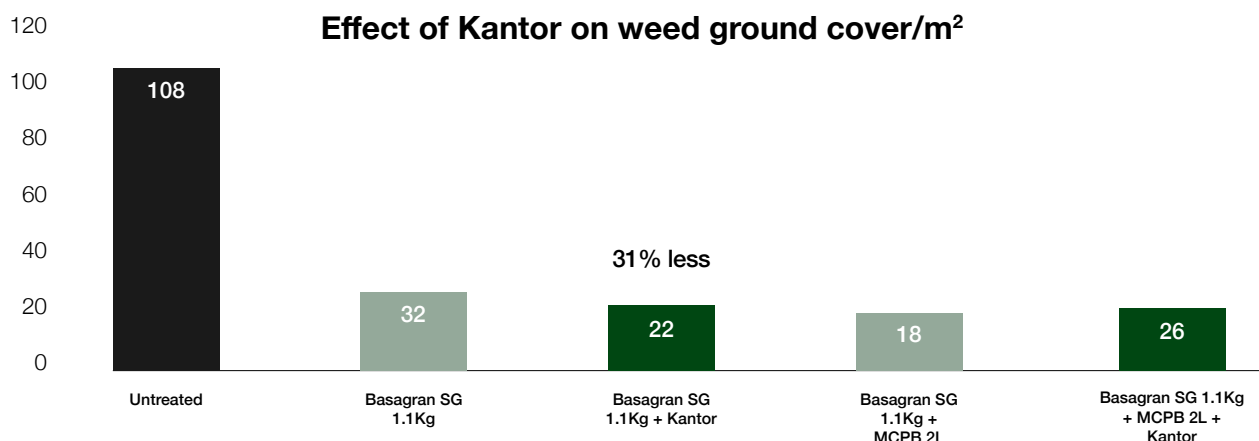
Basagran SG 1.1 Kg/ha



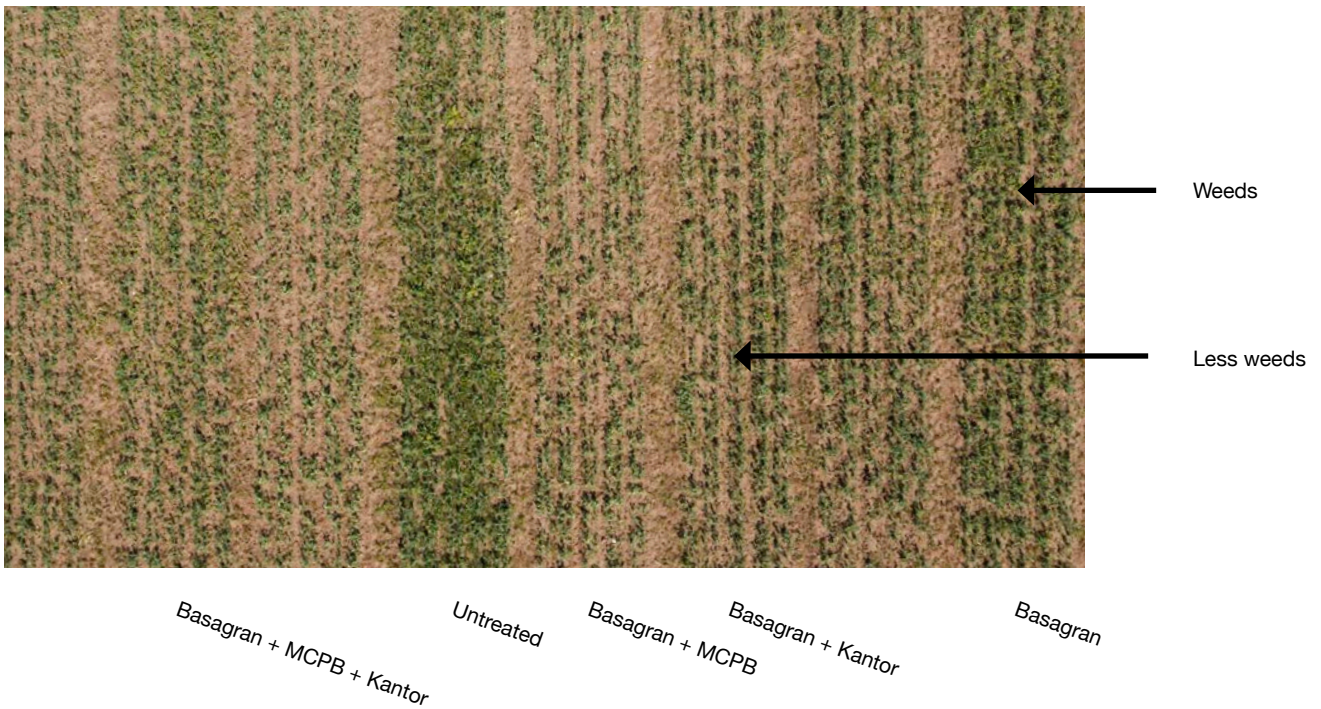
Basagran SG 1.1 Kg/ha + Kantor 0.15%



Effect of Kantor on weed ground cover/m²

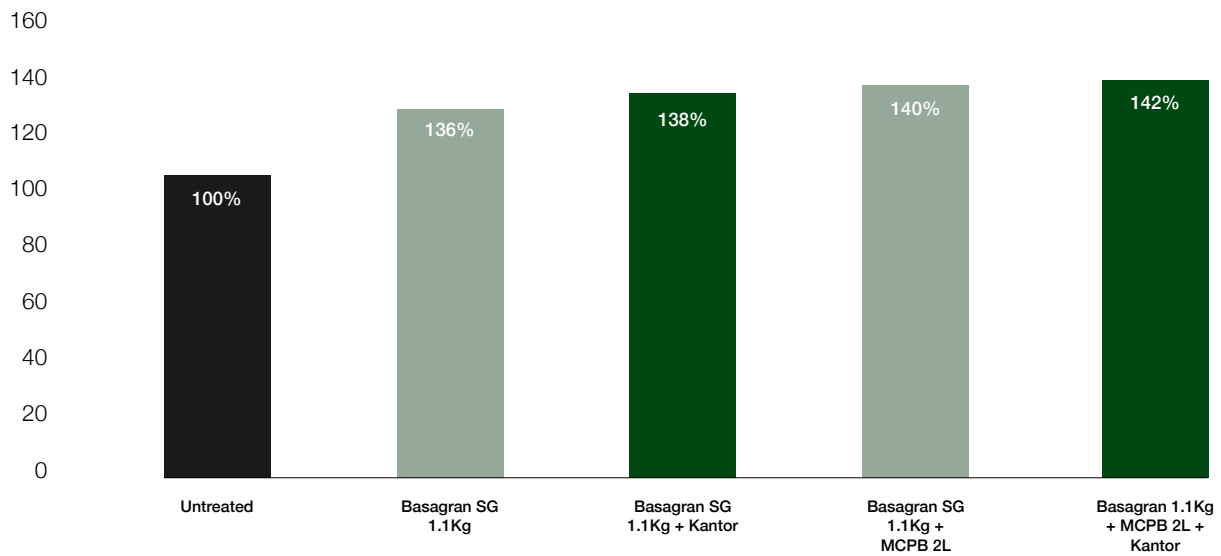


Aerial view - effect of Kantor on weed control - 5 days after application



Highest yields with Kantor

Effect of Kantor on vining pea yield



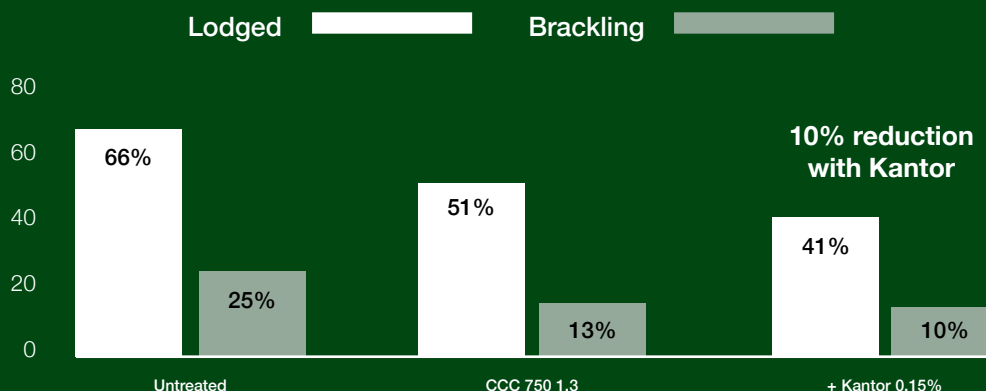
Key takeaways:

- Weed pressure was high in the trial with 108 weeds per sqm in the untreated
- Basagran SG reduced the number of weeds significantly but there was still over 30 weeds per sqm.
- Kantor improved weed control with Basagran SG by an additional 31%
- Kantor did not improve the control of Basagran + MCPB in this particular trial
- Kantor increased vining pea yield with all treatments by 2%. A 2% yield increase on an average yield of 4.6 t/ha would be worth over £40/ha, adding valuable profit.

Improved lodging and disease control in barley

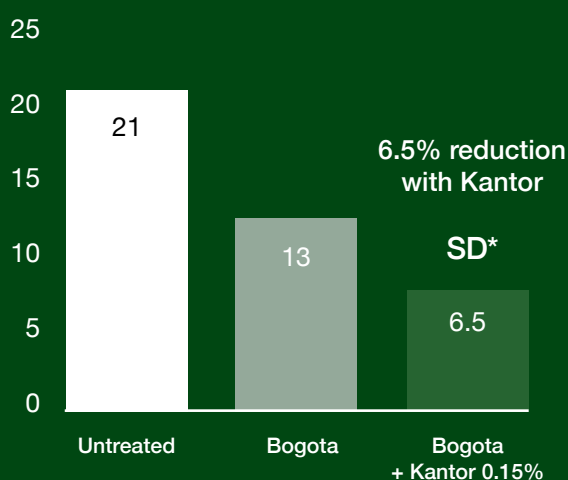
2020 field trials re-enforced Kantor's proven ability to optimise the performance of both early and late season PGRs resulting in reduced lodging and brackling. In Spring Barley, the reduction in lodging was statistically significant.

Effect of Kantor on % lodging and % brackling in Winter Barley



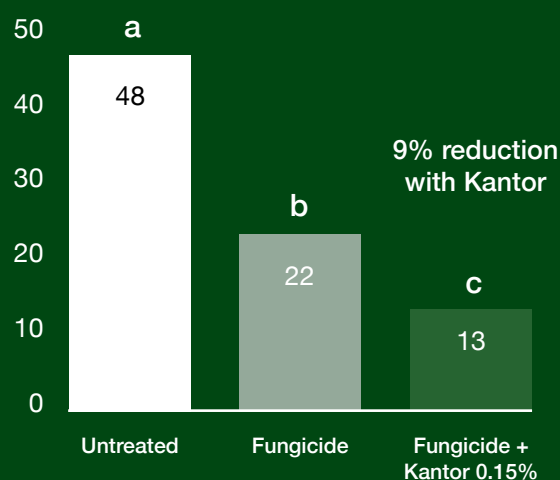
2020 trial, Friday Bridge. KWS Gimlet. Treatments Applied at GS25. Standard Adjust 1 + CC Alatrín Evo 1.5 @ GS32 and Bogota 0.75 + Kantor 0.15% at GS37. NSD.

Effect of Kantor on % lodging in Spring Barley



2020 trial, agrifocus. KWS Sassy. Adjust 1.25 L/ha at GS12-13. CC Alatrín Evo 1.0 L/ha at GS30-31. Bogota 0.75 L/ha at GS33-37. Assessed 13th August. LSD 13.87 for % lodging. Significant difference compared to untreated.

Effect of Kantor on % *Ramularia* infection in Winter Barley



Slovenia 202. Institute of Hop Research and Brewing - Winter Barley cv Concordia. Fungicide programme: T1 Elatus Era 1.0 L/ha fb T2 Zantara (bixafen + tebuconazole) 1.5 L/ha. Assessed 28 days after T2 - 12th June.

Key takeaways:

PGRs

- Kantor improved the (safe) uptake of early and late season PGRs resulting in reduced lodging and higher yields

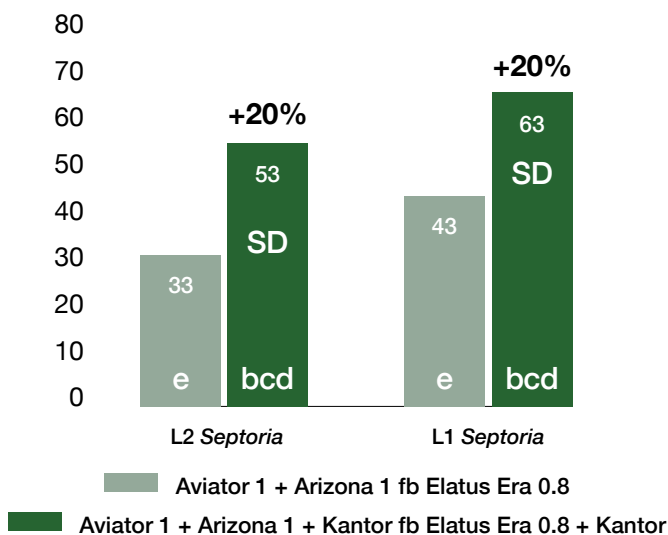
Ramularia

- Kantor reduced *Ramularia* infection significantly over fungicide alone
- Improvements in disease control translated into significant increase in green leaf area and helped protect yield (+0.13 t/ha)

Improved disease control in wheat

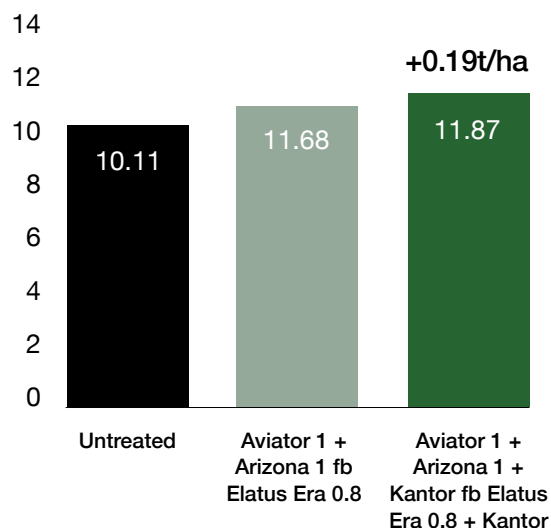
Kantor adds valuable protectant and curative disease control at T1, T2 and T3 in wheat. With increasing pressure on varieties and actives against *Septoria*, Kantor can add significant benefits in high pressure situations.

Effect of Kantor on % *Septoria* control on leaves 1 and 2

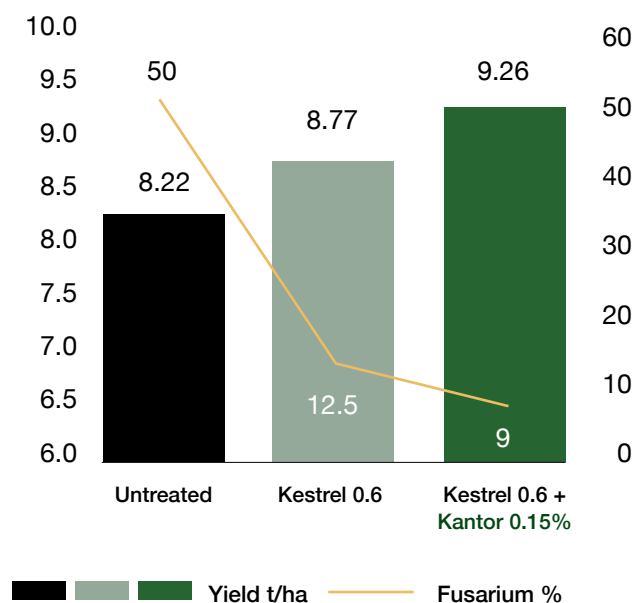


Source: Prime Crop Research UK 2019. East Anglia, Winter Wheat c.v. Basset. Applications at T1 and T2. SD = Significant difference

Effect of Kantor on yield t/ha



Effect of Kantor on % Fusarium infection and yield t/ha



Source: Agrii Yorkshire N=2 trials: 2015 and 2016. Applied GS59. Wheat price. £150/t Note: Kantor increased yield in 2017 trials but there was no fusarium infection

Key takeaways:

Septoria control T1 & T2

- Kantor improved disease control by 20% on leaf 1 and leaf 2 which was statistically significant
- Kantor improvements in disease control increased the yield by 0.19 t/ha over fungicide alone

Fusarium control T3

- The addition of Kantor to Kestrel improved coverage and added valuable protection against fusarium with yield benefits of +0.5 t/ha

Kantor approved crops and application timings

Kantor may be used with all approved plant protection products applied at full rate up to and including the following growth stages below. Application of Kantor beyond the latest timing is permitted only where using half the approved rate of the plant protection product and up to the latest timing of the plant protection product. In cereals, Kantor may also be used with all authorised triazole (conazole) and morpholine fungicides at their full recommended rate and latest timing:

Arable & Veg.	Latest timing of application	Fruit and Salad	Latest timing of application
Cereals	Up to and including 1/4 inflorescence (GS52)	Almond	Up to and including first fruit set
Beans*	Up to and including first pod set	Apple and Pear	Up to and including fruit 5 - 10 mm
Broccoli / Calabrese	Up to and including heads begin to form	Apricot and Cherry	Up to and including first fruit set
Brussel Sprout	Up to and including lateral buds begin to form	Aubergine	Up to and including first fruit set
Cabbage	Up to and including heads begin to form	Black / Strawberry	Up to and including first fruit development
Carrot and Parsnip	Up to and including 9 true leaves unfolded	Black / Redcurrant	Up to and including first visible green fruitlet
Cauliflower	Up to and including heads begin to form	Chilli and Pepper	Up to and including first fruit set
Collard and Kale	Up to and including main shoot at 30% of height	Cucumber	Up to and including first fruit set
Combining Peas	Up to and including flat pot	Lettuce (heads)	Up to and including heads begin to form
Forage Maize	Up to and including tip of tassel visible	Lettuce (no heads)	Up to and including leaf rosette 30% diameter
Hops	Up to and including cone set	Melon	Up to and including first fruit set
Leak and Onions**	Up to and including 9 leaves clearly visible	Peach and Nectarine	Up to and including first fruit set
Linseed	Up to and including 10% capsule formed	Plum	Up to and including first fruit set
Oilseed Rape	Up to and including 10% of pods at final size	Raspberry	Up to and including first fruit set
Potatoes	Up to and including tuber initiation	Rocket	Up to and including 3rd true leaf unfolded
Pumpkin / Squash	Up to and including first fruit set	Sweetcorn	Up to and including tip of tassel visible
Soyabean	Up to and including first pods visible	Tomato	Up to and including first fruit set on first truss
Spinach	Up to and including leaf rosette 30% diameter	Wine / Table Grapes	Up to and including first fruit set
Red / Sugar Beet	Up to and including 6 leaves fully expanded		
Swede and Turnip	Up to and including 9 true leaves unfolded		
Vining Peas	Up to and including flat pod		

Beans*: Includes Broad, Dwarf French, Field, Runner, Edible Podded Pea
Onions**: Includes Bulb, Salad, Shallot, Garlic

Product and application information

Classification	Adjuvant
Composition	Emulsifiable concentrate containing 790 g/l alkoxyated triglycerides
Recommended use	With all approved fungicides, plant growth regulators and post-emergence herbicides
Rates of use	0.15% of the final spray volume
Mixing	Add to the spray tank first before adding plant protection products or fertiliser
Pack size	5 litres

Why Kantor?



The most versatile adjuvant on the market – the 1-can solution for improved tank-mix compatibility and reliable crop protection performance in suboptimal situations



Active across the tank-mix, benefiting all components of the application – herbicides, fungicides and PGRs



The only adjuvant to provide corrective action at every stage of the application process from tank to tissue



Proven benefits in replicated field trials with a wide range of chemistry in an extensive list of crops



The go-to adjuvant to rectify complex tank-mixtures when things go wrong



Safest adjuvant option for sensitive crops



Frequently asked questions

Will I still benefit from adding Kantor to a large tank mix?

Yes, Kantor helps aid compatibility so will reduce the chance of mixing problems, help maintain products in solution, and still offer other benefits such as drift reduction and improved coverage and uptake into the leaf.

How will I benefit from reducing pH

Kantor will reduce pH of the spray water, offering a more stable environment for plant protection products. pH higher than 7 can lead to alkaline hydrolysis (gradual breakdown) of some active ingredients.



How does Kantor increase the uptake of active ingredients into the leaf?

Kantor increases the packing density of active ingredients at the leaf surface, increasing the number of contact points with the cuticle. This increases the number of entry points for diffusion into the leaf.

Can I use Kantor with herbicides in more sensitive crops, such as vining peas?

Yes, trials have shown Kantor is crop safe and we see positive improvements in weed control.

Why is Kantor a safer choice for weed control in sensitive crops compared to oil-based adjuvants?

Oil based adjuvants can improve penetration into the leaf by modifying (solubilising) leaf surface waxes. These can cause injury if applied with a herbicide under less-than-ideal moisture conditions. Kantor's mode of action is unique – it increases the number of molecules per square unit that are in contact with the cuticle, which increases the number of entry points (like increasing the number of lanes on a motorway), but it does not disrupt the cuticular wax as most adjuvants do.

Will Kantor benefit multisite as well as systemic chemistry?

Yes, multisite products benefit from retention and spreading, maximising protection across the whole leaf. Field trials over the years have shown positive improvements in disease control. Systemic products will be helped into the plant through the gentle penetrating properties. This can be advantageous in cold conditions when cuticle wax will be less permeable, slowing mobility, and in curative disease situations when rapid fungicide performance is crucial to disease control.



Testimonials



We've now lost morpholine chemistry, which would have been the go-to for a quick knockdown, and we'd have added a triazole for a more persistent effect. With a smaller range of chemistry now available, we have to be careful how we use it. Kantor helps get the spray across the whole of the leaf surface and down to the base of the canopy, which is whereazole fungicides are needed to knock out yellow rust infection. It's an additional cost that we don't really want but sometimes it's needed.

Matt Clark



Billy Hosdell

Kantor will help calm complex mixes. Tank mixes can get very difficult with so many products in them and this is where Kantor is really beneficial. We've got naturally hard water here and I've found that including it not only settles the mix, but also boosts the efficacy of the herbicides. I've even had some anecdotal evidence from growers that if a tank-mix has gone wrong, tipping in a can of Kantor seems to settle it. It's a great product.



James Grantham

Kantor enables herbicides to penetrate the leaf more effectively. In situations where the leaf is particularly hairy this will help to increase contact and uptake. Its also an incredibly safe product – for example - mixing Kantor with bentazone in beans doesn't hit the crop anywhere near as hard and helps target moderately susceptible weeds better.

We've found that adding Kantor to the tank results in better compatibility, especially early in the season when the spray water tends to be cold and when tank-mixes can be quite hefty.

David Felce



Get in touch

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