

Dereham Monitor Farm meeting report

Meeting 7: Adjuvant academy

Speakers: Kim Christo and Jon Williams (De Sangosse)

Date: 28 November 2017

Location: Beetley Village Hall, Dereham, Norfolk NR20 4BX

For more information, visit: cereals.ahdb.org.uk/dereham



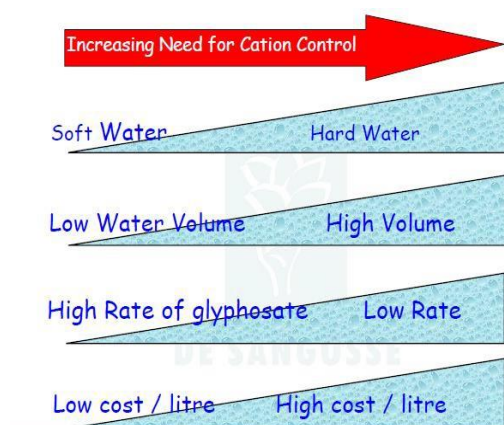
Meeting summary – key messages

- Mixing sequence is key for the addition of water conditioners – add water conditioner first to as much water as possible in the tank or condition water before it goes into the sprayer.
- Check the CRD Adjuvant database for adjuvant details:
secure.pesticides.gov.uk/adjuvants/search.aspx
- Use best practice spray application advice to get the most out of pesticide products, formulations and adjuvant technology

Water

The efficacy of some pesticides can be affected by the water with which they are mixed. Water that is used for spraying with a pH above 7 can affect pesticides by causing ‘alkaline hydrolysis’, which is a permanent and irreversible reaction, making them inactive. Alkaline hydrolysis can affect a range of pesticides, including: phenmedipham, mancozeb, some pyrethroids eg cypermethrin and most organophosphate insecticides. Adding an acidifier will prevent this occurring.

However, a much larger issue is water hardness. This can affect a number of key pesticides, for example glyphosate – see table below. In order to counteract this problem, the best solution is to add a water conditioner, which negates the effect of the cations before adding the pesticide. Ensure that the correct sprayer filling technique is used, with the water conditioned before the pesticide is added, as far as possible. The diagram below can show you if you have a need for a water conditioner.



Agchem actives affected by water hardness		
Sulfonylureas, e.g.		Others
Amidosulfuron	Dicamba	Fluazinam
Flazasulfuron	Bentazone	Fosetyl (Al-salt)
Flupyrsulfuron	Bromoxynil	Glufosinate
Foramsulfuron	Ioxynil	Glyphosate
Imazosulfuron		Quinmerac
Iodosulfuron		Sulcotrione
Mesosulfuron		Florasulam
Metsulfuron	Phenoxy herbicides	Penoxsulam
Nicosulfuron	2,4 D	Aminopyralid
Prosulfuron	MCPA	Trinexapac-ethyl
Rimsulfuron	Mecoprop-P	Gibberellic acid
Sulfosulfuron		Diquat
Thifensulfuron	DIM'S, e.g.	Prohexadione-calcium
Triasulfuron	Clethodim	propoxycarbazone-sodium
Tribenuron	Tepaloxymid	fluroxypyr
Tritosulfuron	Cycloxydim	

Adjuvants

CRD define an adjuvant as:

'A substance other than water without significant pesticidal properties, which enhances or is intended to enhance the effectiveness of a pesticide, when it is added to that pesticide.'

CRD define only the following types of adjuvants; extenders, wetting agents, sticking agents, fogging agents and oils. There are several additives that are not classed as either a pesticide or an adjuvant. These include: water conditioners, anti-foaming agents, tank cleaners, foam bout markers, drift control agents and spray dyes.

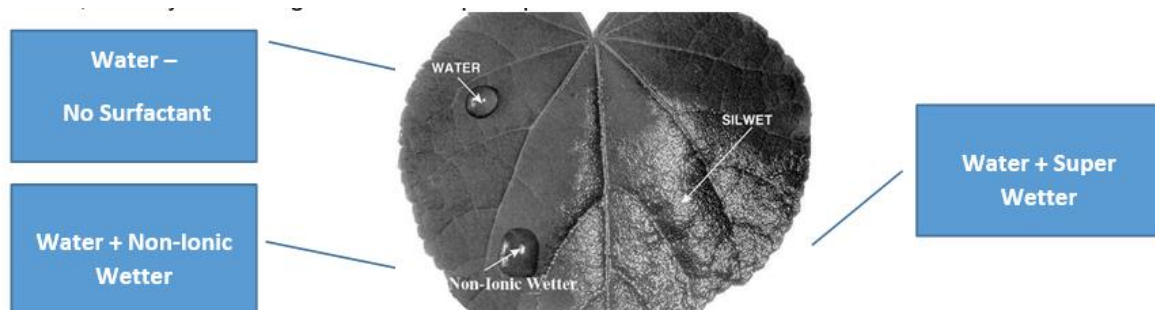
CRD determine the latest crop GS when an adjuvant can be applied with a full rate of pesticide recommended for that crop. Some examples are:

- Oilseed rape: up to and including 10% potential pods
- Cereals: up to and including GS52
- Potatoes: up to and including tuber initiation

Some pesticide labels may specify the need for an adjuvant, eg. Atlantis and Biopower, Axial and Adigor.

Surfactants:

Water droplets are round because of surface tension. Water molecules pack together at the water:air interface to form a strong cohesive force. Surfactants work by pushing apart the water molecules at this interface, thereby increasing the water droplet spread.



Adjuvants

The choice of adjuvant should be determined by the desired effect from the adjuvant and the compatibility with partner products in the tank mix. These are the key types of adjuvants:

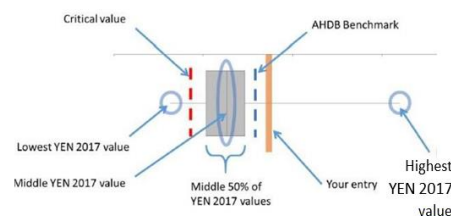
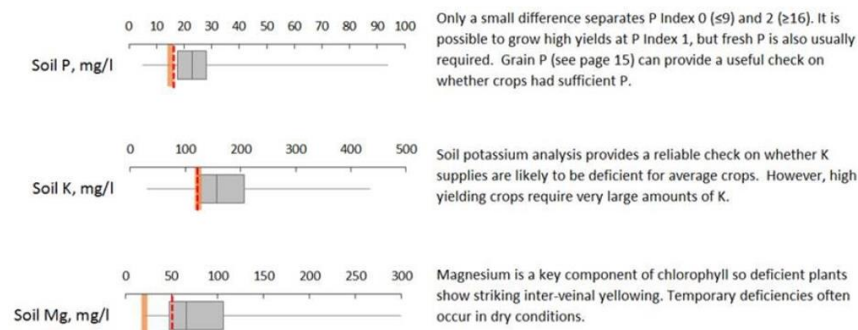
- **Non ionic wetters (alkoxylated alcohols):** the most common type of surfactants used. They work only on the water air interface. They reduce surface tension and increase spreading to 7 times that of water. Useful when the target is waxy or hairy
- **Super wetters (trisiloxane organosilicone copolymers):** these can improve foliar coverage and soil penetration eg for residual herbicides. They have very good spreading power. They are good for stem based diseases, such as eyespot and to enhance micronutrient uptake. They have remarkable surface tension reduction
- **Adjuvant oils:** Their mode of action is harsh to the plant cuticle. They are available as

mineral-paraffinic oils or methylated seed oils.

Check the CRD Adjuvant database for adjuvant details:
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Dereham Monitor Farm YEN results

The Dereham Monitor Farm YEN result for Forest Field in the 2017 Competition was 11.9t/ha, which ranked 38th out of 167 in the Cereal YEN Competition for absolute field yield. This represents 57% of the estimated crop potential at the site in 2017, which ranked 49 in the competition for achieving the highest percent of potential yield for a field. The YEN report contained a very useful summary of the growing year, which included:



Given the low P and Mg results on this report and the low Grain P in addition, Simon Brock, is going to look at increasing his P levels going forwards and include the addition of sewage sludge in the rotation.

Find out more

[AHDB Nozzle Selection Chart](#)

De Sangosse Adjuvant Information and Adjuvant Tree:

www.desangosse.co.uk/products/spray-enhancers/adjuvants

Yield Enhancement Network (YEN) details:

www.yen.adas.co.uk/



Next meeting

Date: 19 December 2017

Topic: Your farm business – fit for the future ([register to attend](#))

Time: 9:00

Location: Beetley Village Hall, Dereham, Norfolk NR20 4BX

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To find out more about Farmbench, AHDB's benchmarking tool, contact: Holly Howsam

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