

Saltburn Monitor Farm

Meeting title: How to get the best out of your sprays and sprayer

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Speakers: Tom Robinson (Robinson Sprays)



Spraying

Aims of spraying:

- To get the best result from the least amount of product
- To get the same result but with less drift
- To make the job easier, e.g. by using lower volumes

Components of 100% control (*listed in order of importance*):

- Product
- Timing is essential – disease is easier to prevent than control
- Mechanical aspects / sprayer set-up – if you get this right everything else falls into place
- Fine tuning e.g. getting the nozzles right – there are big wins here

Legislation

- The UK is the only country in the world where you have to pass a test before you can go spraying

Spray drift

- Modern sprayers are designed to go faster
- The reason for drift is that small droplets bend light and allow them to be seen whereas big ones don't so they are difficult to see

Nozzles and droplet size

- Volume median diameter – the drops in half the volume of spray leaving the nozzle are smaller than this, and half are bigger
- In a traditional fan jet nozzle, spray droplets exit at 80 km/h but their speed drops to 40 km/h within 1 metre
- If the boom is high the droplets slow down more before reaching the crop and penetration is reduced
- New nozzles work well at 40 cm
- Smaller droplets have more energy than bigger drops
- The lower the energy the lower they drop to the vertical
- A bigger droplet moving at half the speed is more likely to stick
- Also bigger drops carry better and so are less sensitive to boom height

Water volume and conditioners

- Increasing water volume increases the coverage or spread
- Decreasing the volume increases the concentration of the formulation, deposition of active ingredient, and sprayer work rate
- Decreasing the volume decreases run-off, machinery cost and risk of cation lock-up

The sprayer

Key requirements in a new sprayer

- Variable rate application
- Auto-fill and auto-clean – well worth having
- Automatic boom height
- GPS guidance
- Auto on-off
- Self-steering
- Record keeping (traceability)

GPS

- Depends how it is set up: rubbish in – rubbish out
- The main problem with it is auto on-off is a time thing, not position, so you need to be consistent with your speed
- The beacon can shade the GPS receiver

Take-home messages

- *Go low (boom height), go slow (forward speed), get covered (greater effectiveness of product)*
- *Select water volumes based on speed and coverage*
- Use the right type of nozzle for the job
- Although reducing water volumes will reduce spray coverage, it has a number of advantages that lead to improved product efficacy as well as reduced run-off

Developing good practice

- Experiments on forward speeds and reduced volumes
- Water volume should be selected based on speed and coverage
- In trials with the Defy 3D nozzle, the optimum speed for applying pre-emergence herbicides was 12–14 km/h
- If you go too fast you can lose boom stability and create turbulence behind the boom - this can lead to increased drift and reduce the effectiveness of the spray
- Bigger droplets reduce drift and increase accuracy
- The 90% drift reduction nozzle gave good results – with this nozzle you need to use 200 litres/ha

Further information

- [Code of practice for using Plant Protection Products](#)
- [PR554: Optimising pesticide use by improving nozzle selection](#)

AHDB resources

- Understand your business costs with AHDB's benchmarking tool Farmbench at ahdb.org.uk/farmbench
- Monitoring tools are available at ahdb.org.uk/tools
- Sign up to market information and research newsletters at ahdb.org.uk/keeping-in-touch
- Find out what's going on at other Monitor Farms and Strategic Farms at ahdb.org.uk/farm-excellence
- All AHDB events can be found at ahdb.org.uk/events
- For guidance on how Brexit will impact your business, see ahdb.org.uk/brexit

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