

# Dodgy diesel: how to keep your fuel clean

► Increase in biodiesel is blocking filters

By Alex Heath

FARMERS across the length and breadth of the UK have been reporting problems with red diesel. Having been encountered for a number of months now, the problem seems to be on the rise with many saying filters are needing frequent changing.

The root of the issue appears to be an increase in the prevalence of biodiesel known as fatty acid methyl ester (FAME) added to farm-grade diesel, which has been capped at 7 per cent since 2011, after rising from 5 per cent. While the level of inclusion has not changed for some time now, the chances of FAME diesel arriving on-farm have increased, thus the increase in incidences of blocked filters.

Jill Hewitt of the National Association of Agricultural Contractors (NAAC) says: "The NAAC is reviewing the problems with fuel, having been inundated with complaints from concerned

contractors having to regularly change blocked filters on tractors, combines, foragers and other machinery."

After consultation with a number of contractors, many report filters needing to be changed after as little as 100 hours, with some even keeping several spare filters in the tractor cabs.

## Pressure

Many have reported low fuel pressure as a result, although it appears more modern and sensitive engines are particularly susceptible.

The UK and Ireland Fuel Distributors Association says the increase in FAME renewable fuels is forced by legislation. In April 2018, the legally required percentage of fuels derived from renewable sources increased to 7.25 per cent and from January 1, 2019, it rose to 8.5 per cent. As expected, this has led to FAME being introduced into gasoil supplies in the UK.

It says, however, that the fuels supplied by its members comply with BSI specification, with the maximum inclusion of FAME at

**8.5%**

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7 per cent. It does though recommend addressing storage concerns with water ingress in unprepared storage at consumer premises top of its list of shortcomings. This includes condensation build-up in tanks, with the biodiesel element holding water in the fuel.

FAME has been added to fuels, not only for environmental reasons, but also lubricity within the combustion chamber, since the amount of sulphur present in fuels has been drastically cut to 10 parts per million with the advent of emission-friendly engines, which cannot cope with high sulphur levels. The sulphur in the fuel acted as a lubricant and also as a natural biocide, keeping fuels free of diesel bugs.

Peter Weide, a marine engine expert who is increasingly involved with ag machinery for MarShip UK,



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explains that diesel bugs are yeasts, moulds and bacteria that live in water and feed on the diesel. They can double in number every 20 minutes. As FAME is very hydroscopic, up to 30 times more water is absorbed into the fuels, with little to no biocide in delivered fuels.

## Condensation

He says it is imperative to reduce the chance of water coming into contact with the fuel. This includes keeping tanks full to stop condensation build-up.

Where farms are concerned, he says the turnover of fuel is an important factor. Those storing fuel for extended periods of time need to be mindful of draining off water from the bottom of tanks and considering additives to stabilise the fuel.

Modern low sulphur diesel is nowhere near as stable as it once was, with instances of compounds settling out of the fuel, causing gumming of filters and lacquering of engine parts, as well as reducing the cetane number of the fuel, thus overall performance of the burn is reduced.

Additives to stop this, as well as diesel bug inhibiting enzymes and killing biocides are widely available and a good bet says Mr Weide. Likewise, it could be a good idea to have storage tanks professionally cleaned now this problem has emerged, before refilling and treating with additive.

## What can farmers and contractors do?

- Only buy from a reputable trusted supplier. A2 gas oil should have a lubricant added at manufacture but it is at a cost and only the very minimum is added. Less reputable suppliers even leave it out, the result being rapid failure of fuel pumps and injectors
- Buy red diesel derived from EN590 road fuel, which is better regulated and has a higher cetane rating and often better lubricity
- Drain the storage tanks of water from the drain valve (if you have

- one) at least once per week or seek professional advice. Simply remove the water and you remove the diesel bug
- Treat the fuel with an additive and lubricity improver to ensure deposits cannot form and the lubricity requirement is guaranteed
- Give the tank a specialist clean before taking delivery of any biofuel
- Continue to carry out regular tank checks and take remedial action if you notice any water, dirt, mould or growth

- Examine filters, pipework and seals on a regular basis, and replace filters after every two or three deliveries
- As water is a big problem, it is recommended to limit storage time of fatty acid methyl ester blended fuels, and to keep tanks topped up to reduce air which can draw moisture
- Home remedies such as fungicides or microbiological killers may do more harm in the long-run. Those that do work may kill the bacteria but the dead growth on the bottom of tank can also build up and cause issues

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