

## TRIAL RESULTS

damage to the crop, except where plants are physically run over on headlands. However, fungicide protection far outweighs this.

Last summer's wet wheat harvest meant infected crops would have benefited from a follow-up fungicide, says Mr Groom.

No field growing maize should be left bare over winter, the MGA says, and as maize becomes better integrated into rotations, there are opportunities to use catch and cover crops to improve soil organic matter levels, utilise nutrients and reduce the risk of soil erosion.

Where maize is being grown following cereals either cut as wholecrop or as grain, cover crops should be drilled. These soils can have organic manures applied and incorporated before drilling the cover crop.

Covers may be destroyed by winter frosts or herbicides next spring, then maize can be drilled direct into destroyed covers or a simple cultivation undertaken before the maize drill, depending on soil type.

In 2016, the MGA undertook a cover crop trial with Agrovista in Norfolk, investigating the use of different cover crop species and timings of herbicide destruction. Cover crops produced 10 tonnes/hectare of biomass by mid-November, and this bulked to 15t/ha by mid-February.

Covers were destroyed using Roundup pre-Christmas and at the end of February to ensure plants were dead before drilling.

The following maize crop grew



Oli Knowland has investigated nutrient cycling where maize is grown as an AD crop within arable rotations.

more rapidly on plots having grown a cover crop due to better soil structure. This was most evident during July when plants were rapidly growing and at harvest, where plots with a cover crop were bulkier by eye and when flown by drone to assess biomass.

At harvest, fresh yields on cover crop plots were higher, on average up 1.1t/ha when sprayed off on December 12 and up 2.1t/ha when sprayed off on February 27.

Crop DM, however, was lower due to more nitrogen being released from decomposing covers, keeping the maize crop greener.

Further work is being done this year, but key lessons are to drill any cover as soon as possible after harvest, ideally within six hours of combining or cutting for wholecrop.

Drilling depth should be deter-

mined by the smallest seed species so all the mix germinates. Lightly roll to improve seed-to-soil contact and control slugs in wet seasons.

Finally, a word about growing AD maize. Oli Knowland from Future Biogas has investigated the nutrient cycling within arable rotations where maize is grown as a cash crop to supply feedstock for AD plants.

### Second year

The MGA has placement, top dressing and foliar fertilisers in the second year of trials, which should help AD operators make the best choice of inputs to satisfy necessary sustainability criteria.

Products used are required to have low energy in their manufacture and in the field after application. Products with nitrogen inhibitors can reduce N<sub>2</sub>O emissions and

reduce leaching. N<sub>2</sub>O is 340 times worse than CO<sub>2</sub>, so is a very potent greenhouse gas.

The placement fertiliser trial includes standard treatments with additional micronutrients. This year's indication is that they may not add a great deal of extra yield, but they improve quality, with earlier DM% and higher starch content.

AD plant operators, who are using more manure as a feedstock and fertilising maize with less artificial fertiliser, could add nitrogen inhibitors to manure to increase greenhouse gas saving for the public good if rewarded for the extra cost.

The placement trial also has some biological products which show promise to remove the need for fresh phosphate, especially where phosphate levels are above index three.

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