

Johne's disease often remains hidden for years, but outbreaks have devastating effects on individual animals or entire populations. Neil Ryder speaks with vet David Black and farmer Mike Bowe who believe the disease can only be brought under control by an industry-wide approach.



David Black (left), surgeon from Paragon Veterinary Group and Mike Bowe, Chalk Lodge farmer.

## Agricultural sector needs to work together to tackle Johne's disease

For far too long, many in the industry have effectively turned a blind eye to the problem of Johne's disease in cattle, fearing recognition of the threat will prejudice stock sales.

But veterinary surgeon David Black of Paragon Veterinary Group in Dalston, Carlisle, and

dairy farmer Mike Bowe of Chalk Lodge, Dalston, say it is time for vets, farmers, auctioneers, dealers and breed societies to make a concerted effort to understand more about the prevalence, spread and risks of this disease.

Mr Black and Mr Bowe are working closely together to

control the incidence of Johne's in Mr Bowe's 600-cow dairy enterprise. They are also teaming up to highlight the wider need for Johne's control.

They say while the very nature of the disease means eradication is very challenging, an industry-wide approach can greatly reduce incidence of the

disease and transmission risk between individual animals and between herds.

Mr Black says much of this is simple risk management aimed at breaking the chain of transmission by which Johne's can move between animals and especially protecting young calves from infectious materials.

Mr Bowe is the fourth generation of his family to hold the tenancy of Chalk Lodge and with his son and daughter 'mad about farming', there is every likelihood of a fifth generation.

Stock at the farm comprises 600 milkers and 500 followers (including calves), which are all Holstein and about 90 per cent pedigree.

The herd is run on strictly commercial lines,



**If a young calf is infected with Johne's, it will usually show little sign**

DAVID BLACK

with all suitable heifers retained as herd replacements. Some additional heifers are bought-in.

Mr Bowe says: "We used to have the big, tall type of Holstein, but have pulled back to a less extreme type of animal. We calve year-round and milk goes on a Meadow Foods contract.

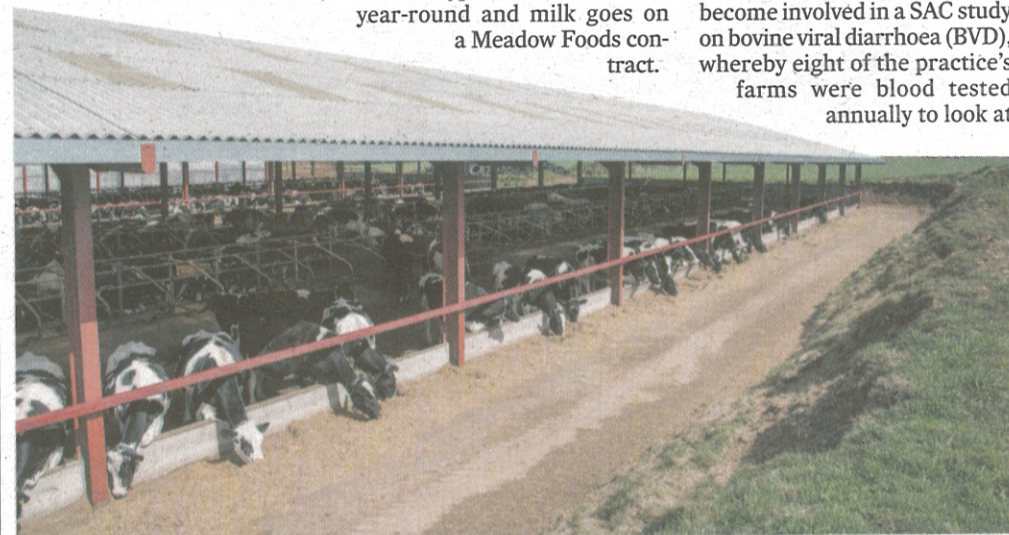
"Up until about this time last year we averaged about 9,500 litres per cow, but because of high feed costs, this dropped back to the present 8,250 litres at 4 per cent fat and 3.3 per cent protein. We do not push the cows and this is really a relatively low input, low output system.

"Feeding is a mix of barrier fed forage out of parlour feeders and feeding to yield in the 28:56 swingover parlour."


### Calving interval

Fertility is currently very good. The submission rate of 66 per cent and pregnancy rate of 24 per cent, have culminated in a falling calving interval. This is predicted to be 385 days for this year.

About six years ago, Paragon Veterinary Group was asked to become involved in a SAC study on bovine viral diarrhoea (BVD), whereby eight of the practice's farms were blood tested annually to look at




Mike Bowe is keen to reduce incidence of Johne's in his 600-cow dairy herd. PICTURE: John Eveson



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the cost effectiveness of various BVD control strategies. Mr Bowe's herd was one of these.

Mr Black says: "It was opportune to also check for John's disease after a few clinical cases appeared in the bought-in cows."

He says as data was built up over several years and interventions put in place, it became an ideal farm to be included in what is known as the Scottish Paraban study. This aims to find ways to control John's disease and organisers were keen to include a farm from south of the Scottish Border.

### Champion farm

Mr Black says: "This in turn led to a link between Paraban, DairyCo and our veterinary practice and for Chalk Lodge to become a champion farm in Cumbria, supported by DairyCo funding."

In terms of BVD, initial tests showed only a very low incidence in the herd as it was already well controlled. The herd is now BVD-free.

## It is unlikely we can ever eradicate John's from a herd such as Mr Bowe's

DAVID BLACK

The Chalk Lodge herd was also a good subject for John's testing as the original herd was lost in the 2001 foot-and-mouth epidemic and had been restocked with cattle from three different herds.

Mr Black says: "Blood results showed several cows which looked perfectly healthy had high antibody levels, indicating they were already infected."

"Although the source was largely from one particular herd used for restocking, there was evidence all the source herds, as

well as some imported cattle, had significant levels of infection.

"A 'traffic light' system was set in place with cows showing the greatest level of antibodies being given a red tag to show they will be culled at the first opportunity. All other at risk animals were identified. These included daughters, sisters and mothers of John's positive cows.

"A smaller pedigree-type herd could become clear of the disease much quicker by heavy culling. But in a large commer-

cial dairy herd, this is just not practical as milk has to keep going into the tank.

### Little sign

"If a young calf is infected with John's, it will usually show little sign, remaining sub-clinical for at least two or three years then flaring up. The problem is compounded as John's tests under two years of age are unreliable because of the way the bug 'hides' from the immune system of the animal. Main transmission is through faecal material from infected animals. ▶



A red eartag is used to indicate cows which have given the strongest reaction to John's antibodies and will be culled first.

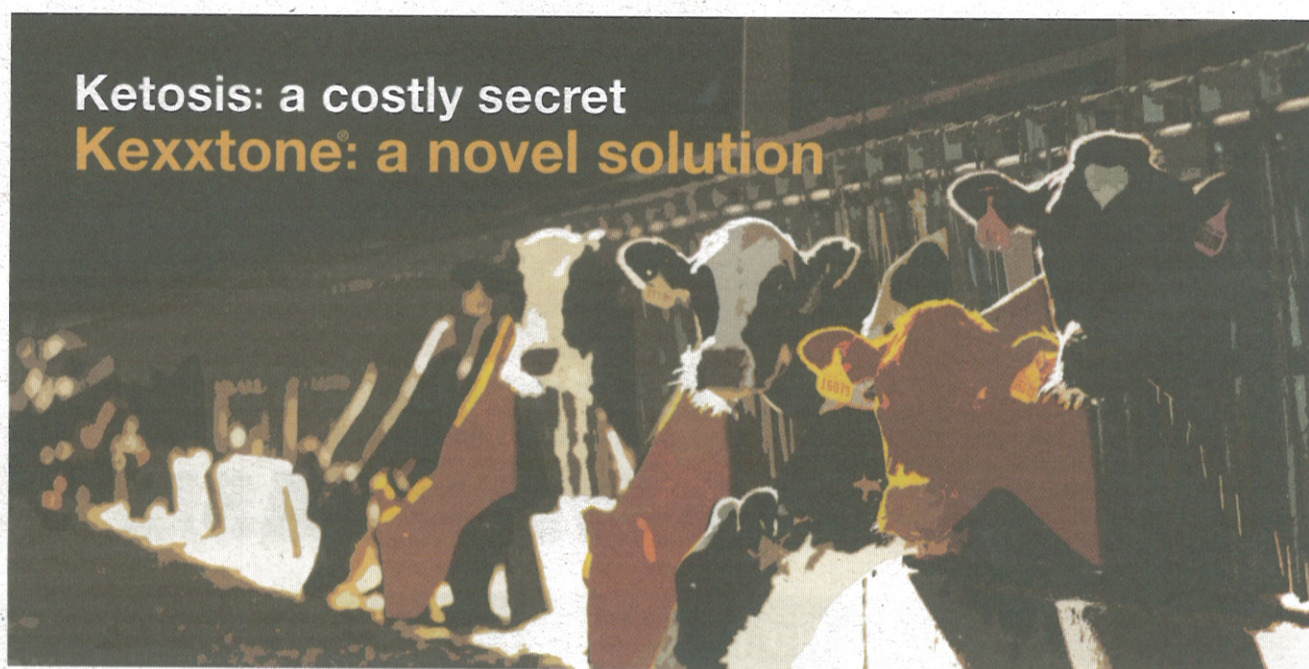
### John's disease

- An infectious wasting condition of cattle and other ruminants caused by *Mycobacterium avium* subspecies *paratuberculosis* (commonly known as MAP)
- The disease was noted by Heinrich A. John, a German bacteriologist and veterinarian, in 1895
- There are no recorded cases

- of transmission to humans
- Main transmission is by calves in the first few weeks or months ingesting the organism
- Most of the contamination is in the faeces of shedding animals
- There is a small amount of transmission through milk, in utero and between older animals, but the main risk is faeco-oral in young calves



Everything in Chalk Lodge's calf house is kept as clean as possible.



## Ketosis: a costly secret Kexxtone: a novel solution

You can't see hidden ketosis. But it's there. Recent studies show it can affect around 30% of cows<sup>1</sup>, even in well-managed herds.

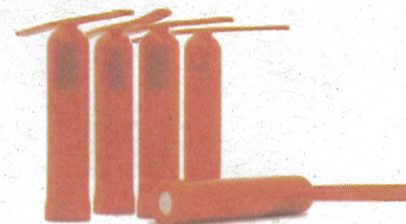
Now there's a new solution to help farmers manage this hidden threat. Kexxtone is an innovative prescription-only veterinary medicine proven to reduce the incidence of ketosis.

### Kexxtone:

- Reduces ketosis\* by 74%<sup>2</sup>
- A single bolus – easy to administer

Advice should be sought from a Veterinarian prior to use.

\*Ketosis: > 1000 µmol/l blood beta-hydroxybutyrate



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### Kexxtone 32.4g continuous-release intraruminal device for cattle. Monensin.

Kexxtone 32.4g continuous-release intraruminal device for cattle contains Monensin 32.4g (equivalent to 35.2g monensin sodium). Each intraruminal device contains: 12 subunits each containing 2.7g monensin (equivalent to 2.9g monensin sodium). Polypropylene\* orifice cap. Polypropylene\* plunger. Polypropylene\* barrel and wing. Steel spring. The polypropylene components are coloured with sunset yellow E110.

Amounts to be administered and administration route: Intraruminal use. A single intraruminal device is to be administered to a dairy cow/heifer 3-4 weeks prior to expected calving, using an appropriate administration tool. Kexxtone delivers an approximate average dose of 335mg of monensin per day for approximately 95 days.

Target species: Cattle (dairy cows and heifers).  
Indications for use: For the reduction in the incidence of ketosis in the peri-parturient dairy cow/heifer which is expected to develop ketosis.  
Contraindications: Do not use in animals weighing less than 300 kg bodyweight.  
Special warnings for each target species: Identification of animals for treatment should be at veterinary discretion. Risk factors may include a history of energy-deficiency-related diseases, high body condition score and parity. In the event of early regurgitation, identify the animal by matching the animal ID number with the number on the intraruminal device and re-administer an undamaged intraruminal device.  
Special precautions for use in animals: Hold treated cattle in a confined area for 1 hour after administration to observe for failure to swallow or regurgitation. If this occurs re-administer the intraruminal device if undamaged. If damaged, administer a new intraruminal device. Recheck cattle for up to 4 days after dosing to observe for signs of an intraruminal device lodging in the oesophagus. Signs of lodging may include bloat which may be followed by coughing, drooling, inappetence and unthriftiness.  
Special precautions to be taken by the person administering the veterinary medicinal product to animals: Exposure to the active substance may elicit an allergic response in susceptible individuals. People with known hypersensitivity to monensin or any of the excipients should avoid contact with the veterinary medicinal product. Do not eat, drink or smoke when handling the veterinary medicinal product. Use gloves when handling an intraruminal device, including during retrieval of a regurgitated intraruminal device.

Remove gloves and wash hands and exposed skin after handling intraruminal devices.  
Other precautions: Do not allow dogs, horses, other equines or guinea fowl access to formulations containing monensin. Consumption of intraruminal device contents can be fatal in these species.  
Use during pregnancy, lactation or lay: Can be used during pregnancy and lactation.  
Withdrawal periods: Meat and offal: zero days, Milk: zero days

Pharmacological Properties:  
Pharmacotherapeutic group: Drugs for treatment of acetonaemia, ATC vet code: QA16QA06  
Monensin is a member of the pharmacotherapeutic group of polyether ionophores, specifically the carboxylic subgroup. They are the product of natural fermentation products produced by *Streptomyces cinnamonensis*.

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Further information is available upon request or to be found in the SPC relating to this product.

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Always seek advice on the correct use of this or alternative medicines from the medicine prescriber.

### REFERENCES

- 1 Macrae, et al. 2012. Prevalence of clinical and subclinical ketosis in UK dairy herds 2006-2011. World Biometrics, Lisbon, Portugal: Elanco Farm Audit 2011, No. GN4FR110006. Data on file.
- 2 CVMP assessment report of an application for the granting of a community marketing authorisation for Kexxtone (EMA/V/C/002235).

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The full impact of Chalk Lodge's calving pens and pasteurisers will not be seen for several years.

◀ "It is unlikely we can ever eradicate Johne's from a herd such as Mr Bowe's, but we have already managed to greatly reduce incidence of the disease. It may well be another five years before it is almost free."

Mr Black says risk management should break the chain of infection.

He says: "We blood test for Johne's antibodies to identify adult cattle carrying Johne's and use this to identify cow families which seem particularly vulnerable to the disease."

"Here at Chalk Lodge, Mr

Bowe has developed a calf system to greatly reduce this risk. Calving cows are brought into a purpose-built calving pen with rubber mat flooring which is easily cleaned and disinfected.

"At first, we thought cows might slip on this, but in fact it has worked well. As soon as a calf is born, it is put into a bunker in front of the calf pen so the cow can lick her calf normally, but the calf is clear of any of her faeces."

### Procedure

"Colostrum is collected from the cow and pasteurised before feeding to the calf to kill any Johne's organisms. The calf is moved directly to a clean, airy, purpose-built calf building and will be kept clear of the main herd during the rearing process. The main herd is monitored

“ Blood results showed several cows which looked perfectly healthy had high antibody levels

DAVID BLACK

and tested for Johne's and other problems during routine weekly veterinary visits.

"The major problem with Johne's is it can be present in sub-clinical form for long periods with no outward signs of the condition, then appear as the clinical wasting disease which is ultimately fatal. By this stage there will be many more infected animals in the herd."

Although incidence level at Chalk Lodge is decreasing steadily, benefits of interventions such as the calving pens and pasteurisers will not be seen for several years.

Both Mr Black and Mr Bowe accept the Chalk Lodge herd is unlikely to be completely free of Johne's in the foreseeable future, but by managing the risks involved there should be a steady reduction in incidence.

On the wider front, Mr Bowe says he is simply looking to continually improve his business rather than planning any major developments.



Each calf has its own feeding bottle which is kept with it.

### Chalk Lodge facts

- The farm is 121 hectares (300 acres) and there is also about 283ha (700 acres) of rented land close by so the whole area can be farmed as one unit
- Apart from 113ha (280 acres) of cereals, including 24ha (60 acres) of wholecrop, the farm is all long-term grass. The cereals are all used for home feeding
- Breeding decisions are left to a major cattle breeding service
- Heifers calve at about 25-26 months of age
- Most bull calves go to a Cheshire rearer, with any surplus sold through auction
- All bought-in dairy replacements go straight into the dairy herd, but are monitored as part of the weekly veterinary visits

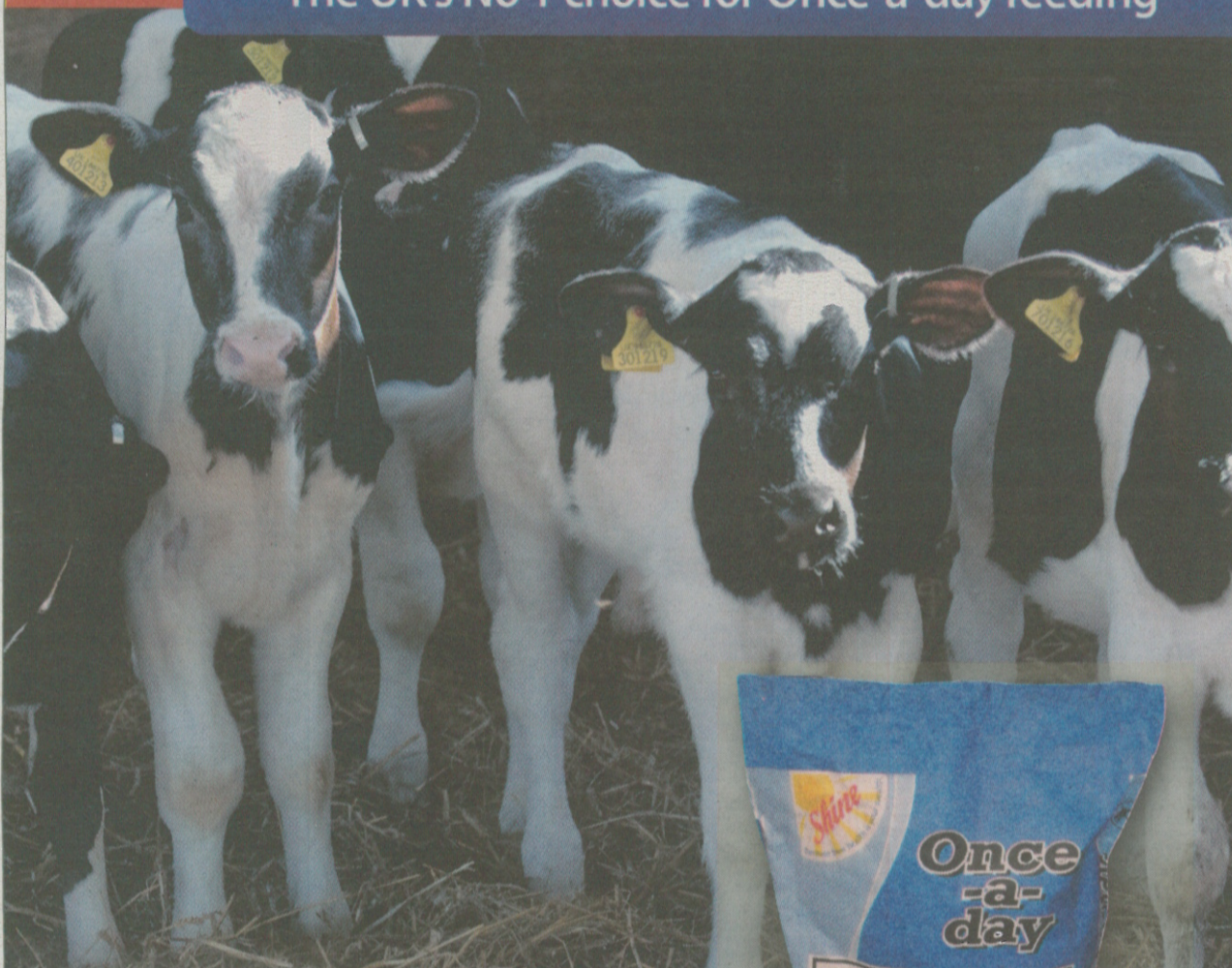


Mike Bowe's Holstein heifers calve at about 25-26 months of age.

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