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Submission service:

<https://www.animal-disease-testing.service.gov.uk>

26/EC

APHA Ref. No. 26-C0141-10-20

Date Received 21/10/2020

**Submission details as supplied by the
customer**

Sender's Ref. Not Given

Previous Ref Not Given

Owner

CPHH

Date of Sampling 21/10/2020

Case Vet

Species / Breed Cattle / Aberdeen Angus

Sex / Age Male / 3 Years

Fax:

Email: [\[REDACTED\]@ \[REDACTED\].co.uk](mailto: [REDACTED]@ [REDACTED].co.uk)

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

REPORT 1 (PRELIMINARY)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

HISTORY

A 3-year-old bull had been off colour for two to three weeks and was found dead on the morning of 21st October. It had been at grass all summer with cattle but had been noticed off colour two to three weeks previously and started to lose condition. It was brought inside and given some corn which it ate slowly. It was examined one week ago and found to be pyrexia and had a small amount of blood around the nostrils. It was blood sampled and treated with antibiotics and anti-inflammatories. Biochemistry and haematology results from blood taken a week before it died revealed a mild leukocytosis suggestive of inflammation or infection, raised GGT indicative of significant hepatobiliary stasis, GLDH mildly raised and indicative of mild hepatocellular damage, NEFA moderately raised and indicative of a moderate degree of fat being mobilised to meet energy needs.

The bull had appeared stable but was found dead in the morning on 21st October. It had not received vaccines and was probably wormed in the spring.

GENERAL OBSERVATIONS

Identification	Sex	Weight (kg)	Body Condition	Degree of Autolysis	Submitted Live/Dead/Frozen
UK [REDACTED]	Male	871	Good	Mild	Dead

NECROPSY FINDINGS

Skin and subcutis and musculoskeletal system:

A small amount of dark liquid faeces was present around the perineum.

The charge for this laboratory work is [REDACTED] plus VAT if applicable. This will be included in your monthly statement.

Service Charge Code(s): , **TC0003 x 1, TC1606 x 1**

Additional Service Code(s) performed: PC0006 x 1, TC0008 x 1, TC0010 x 1, TC0025 x 1, TC0101 x 2, TC0575 x 1, TC0655 x 1, VSUREA x 1

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Abdominal cavity:

There was an excess of yellow/brown peritoneal fluid. Fibrin was present overlying the bladder and bowel loops. Haemorrhage and blood clots surrounded the gall bladder and duodenum. The liver was markedly enlarged and had a pale tan coloured external appearance and rounded edges. The cut surface of the liver was orange. The gall bladder was distended with a large amount of dark brown orange bile. Scattered areas of haemorrhages were visible in the liver parenchyma. There was mild yellowing of the abdominal and subcutaneous fat.

Alimentary system:

The rumen was full of dark brown herbage and green fluid with pieces of cereal scattered throughout and some remnants of acorns. The reticulum contained similar watery contents with some whole and partial acorns present. The omasum was full of soft watery content with areas of reddening/haemorrhage on the surface and some whole acorns present. The abomasum was distended with a large accumulation of dark brown firm sand with some acorns present. There was marked abomasal ulceration with large irregular ulcers up to 3cm across in the pyloric region and dark red deep linear ulcers in other regions. There was marked oedema of the serosa around the pylorus and proximal duodenum and a large area of haemorrhage attached to the duodenum. The small intestine contained yellow milky fluid and the large intestine was distended with dark brown to black watery haemorrhagic content.

Respiratory system:

There was reddening of the right lung lobes (congestion) and some surface emphysema in the left middle lung lobe.

Lymphoreticular system:

The hepatic lymph nodes were enlarged firm and pale and the thoracic lymph nodes were enlarged and dark.

Urinary system:

There was a large amount of perirenal fat and some oedema.

Nervous system:


The conjunctivae were dark red and there was a crusty discharge around the eyes.

WORK IN PROGRESS

Urea x 1, Primary bacterial culture and presumptive identification x 2, Salmonella Culture x 1, PCR for BVD virus in tissue or serum x 1, histopathology

COMMENTS

Severe hepatopathy was present with an enlarged, orange discoloured liver. This is consistent with the biochemistry results from a sample taken a week before the bull died. At the time of death there was also abdominal haemorrhage, peritonitis, abomasal ulceration, haemorrhagic enteritis, excess sand in the abomasum and acorns in all four stomachs. We will investigate further. Although the urea level was not raised it would be worth ensuring the cattle do not have access to excess acorns


22/10/2020

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Tell us what you think of APHA's laboratory testing and post mortem services and take part in our customer satisfaction survey. The survey is available in English and Welsh here:
https://defragroup.eu.qualtrics.com/jfe/form/SV_cuqSVwY8ektZqzb



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CPHH

Date of Sampling 21/10/2020

Case Vet

Species / Breed Cattle / Aberdeen Angus

Sex / Age Male / 3 Years

Fax:

Email: [\[redacted\]@ \[redacted\].co.uk](mailto: [redacted]@ [redacted].co.uk)

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

REPORT 2 (INTERIM)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

LABORATORY FINDINGS

Microbiology

Sample	Salmonella culture direct	Salmonella culture enrichment
1 (Faeces)	No Salmonella isolated	Result pending

Primary Bacterial Culture

Sample	Bacteriology Result
1 (Liver Swab)	No growth @ 24 hrs.
1 (Lung Swab)	Moderate pure growth of non-haemolytic gram negative rod.

WORK IN PROGRESS

Salmonella enrichment culture, extended bacteriology, Urea x 1, PCR for BVD virus in tissue or serum x 1, sensitivity results.

23 October 2020

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Animal &
Plant Health
Agency

Animal and Plant Health Agency Shrewsbury

Kendal Road, Harlescott, Shrewsbury. SY1 4HD

Telephone: 03000 600023

Email: RLShrewsbury@apha.gov.uk

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Case Vet SW

Species / Breed Cattle / Aberdeen Angus

Sex / Age Male / 3 Years

Fax:

Email: [\[REDACTED\]@ \[REDACTED\].co.uk](mailto: [REDACTED]@ [REDACTED].co.uk);

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

[\[REDACTED\]@ \[REDACTED\].co.uk](mailto: [REDACTED]@ [REDACTED].co.uk)

REPORT 3 (INTERIM)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

LABORATORY FINDINGS

Microbiology

Sample	Salmonella culture direct	Salmonella culture enrichment
1 (Faeces)	No <i>Salmonella</i> isolated	Culture pending further ID

Primary Bacterial Culture

Sample	Bacteriology Result
1 (Liver Swab)	Mixed flora containing a few colonies growth of non-haemolytic <i>Escherichia coli</i> .
1 (Lung Swab)	Moderate pure growth of non-haemolytic <i>Escherichia coli</i> .

WORK IN PROGRESS

Extended salmonella culture, Urea x 1, PCR for BVD virus in tissue or serum x 1, sensitivity results, histopathology

26/10/2020

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1769



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Case Vet

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Sex / Age Male / 3 Years

Fax:

Email: [\[REDACTED\]@ \[REDACTED\].co.uk](mailto: [REDACTED]@ [REDACTED].co.uk)

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

REPORT 4 (INTERIM)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

LABORATORY FINDINGS

Microbiology

Sample	Salmonella culture direct	Salmonella culture enrichment
1 (Faeces)	No Salmonella isolated	No Salmonella isolated

Sensitivity Report : 26-C0141-10-20

Test Results: S - Sensitive R - Resistant

Species	Sample Ref	Site	Isolate	Isolate Ref
Cattle	1	Lung Swab	Non-haemolytic <i>Escherichia coli</i>	IS12-11225

Antimicrobial	Disc Content	Result
Apramycin	15 µg	S
Spectinomycin	25 µg	R
Neomycin	10 µg	R
Amoxicillin / Clavulanic acid	30 µg	R
Trimethoprim / Sulphamethoxazole	25 µg	R
Ampicillin	10 µg	R
Enrofloxacin	5 µg	S
Tetracycline	10 µg	R

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Notes.

- 1) Organisms sensitive to neomycin are generally also sensitive to framycetin.
- 2) Ampicillin and amoxicillin have similar activity.
- 3) Enrofloxacin is chosen to represent the licensed fluoroquinolones (danofloxacin, marbofloxacin and enrofloxacin).
- 4) In general cross-resistance exists between the tetracycline group (chlortetracycline, oxytetracycline and tetracycline).

WORK IN PROGRESS

Urea x 1, PCR for BVD virus in tissue or serum x 1, histopathology



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Sex / Age Male / 3 Years

Fax:

Email: [\[redacted\]@ \[redacted\].co.uk](mailto: [redacted]@ [redacted].co.uk);

[\[redacted\]@ \[redacted\].co.uk](mailto: [redacted]@ [redacted].co.uk)

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

REPORT 5 (INTERIM)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

LABORATORY FINDINGS

Virology

Sample	BVDV PCR Result
UK [redacted]	Negative

WORK IN PROGRESS

Urea x 1, histopathology

27/10/2020

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Sex / Age Male / 3 Years

Fax:

Email: [\[REDACTED\]@ \[REDACTED\].co.uk](mailto: [REDACTED]@ [REDACTED].co.uk);

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

REPORT 6 (FINAL)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

LABORATORY FINDINGS

Biochemistry

Test	Units	1
Urea (Aqueous Humour)(‡)	mmol/l	28.7

HISTOPATHOLOGY †

The histopathology report of my colleague [REDACTED], APHA Weybridge, is included below

SAMPLES RECEIVED

Formalin fixed samples of various tissues from a 3-year-old bull which died after a period of malaise and inappetence. Gross and clinicopathological evidence of hepatopathy.

SUMMARY OF PATHOLOGICAL FINDINGS

Liver: Three sections. Diffusely across all sections, portal tracts are expanded by fibrosis and oval cell hyperplasia, which breaches the limiting plates. There is collagen deposition along sinusoids and sometimes these dissect the lobular architecture and bridge across lobules. Hepatocytes show notable variation in cell and nuclear size and sometimes there is deposition of amorphous yellow pigment between swollen hepatocytes (bile). Multifocally there is necrosis of segments of hepatocytes, with low numbers of degenerate neutrophils.

Kidney: One section. Moderate autolysis. Roughly 10% of tubules show one or more of the following changes: attenuation of epithelium, infiltration by degenerate leukocytes, accumulation of globular, eosinophilic material (proteinosis) or amorphous yellow material. There are also occasional small interstitial infiltrates of lymphocytes and plasma cells.

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Abomasum: Three sections. Each section has a small focus of mucosa necrosis, with exudation of fibrin and moderate numbers of lytic neutrophils. Vessels beneath the lesions show thrombosis and fibrinoid deposition in the media. The submucosa is expanded by fibrinous oedema, with scattered degenerate neutrophils and macrophages. The surrounding mucosa is tall (tentative hyperplasia), with perhaps reduced numbers of chief and parietal cells and with numerous intra-epithelial globule leukocytes.

Intestine: Three sections of SI. Moderate autolysis. The lamina propria contains moderate numbers of eosinophils, along with lymphocytes and plasma cells. Unremarkable.

MORPHOLOGICAL DIAGNOSIS

Liver: Moderate to marked, diffuse, chronic, hepatopathy, with portal fibrosis and ductular reaction

Kidney: Mild, multifocal, acute, tubular injury

Abomasum: Moderate, multifocal, acute, necrotising, fibrinosuppurative abomasitis, with fibrinoid necrosis of vessels and thrombosis

COMMENT

The most significant changes appear in the liver, where there is evidence of chronic hepatotoxic injury. The microscopic appearance of the liver is highly suggestive of pyrrolizidine alkaloid toxicity, but some other toxic plants (eg lantana) and fungal toxins (eg aflatoxins) can produce similar changes. In addition to this, there is mild evidence of renal tubular injury, which may be the result of hypoxia (circulatory failure) or exposure to nephrotoxins (including acorns). The necrotising/ulcerative lesions in the abomasum are non-specific, they would appear to have a vascular basis (ie infarction), but there are no infiltrates around vessels to implicate MCF, say, and the vascular injury might be the result of toxins or endotoxins absorbed across the mucosal barrier, or due to circulating toxins or metabolites secondary to the hepatic or renal injury. On balance, I feel the abomasal lesions are acute, terminal events, of secondary significance to the chronic and severe hepatopathy.

COMMENT

As suspected the histopathology confirms the gross appearance of the liver of severe hepatopathy. There is diffuse chronic hepatopathy with portal fibrosis and ductular reaction which is highly suggestive of pyrrolizidine alkaloid toxicity. The changes are chronic and are likely to have taken weeks to develop. Some other toxic plants (eg lantana) and fungal toxins (eg aflatoxins) can produce similar pathological changes.

A range of plants contain pyrrolizidine alkaloids. Ragwort is a common species that we associate with this type of poisoning and it is poisonous when fresh, dried or after incorporation into hay or silage or other feed. Chronic poisoning is the usual form of disease which may take weeks or months to develop.

As described in the histopathology report, renal pathology was also present which would be consistent with exposure to nephrotoxins including those contained in acorns. We know that the bull had been eating acorns and that testing the aqueous humour level has found a high urea level.

As discussed, we would be interested to know what plants the bull has been exposed to that may have resulted in the liver lesions, and if there are therefore risks to other livestock on the premises.

If we have any further comments about the histopathological changes after further review I will contact you again. It is recommended that the livestock do not have access to any potentially toxic plants, including acorns, on the pasture or in hay/silage and that checks are made to ensure garden waste is not being put into the fields.

02/11/2020

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REPORT 7 (SUPPLEMENTARY)

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COMMENTS

Please see below some comments regarding ragwort and pyrrolizidine alkaloid poisoning:

- Ragwort is one of many plants that contain pyrrolizidine alkaloids (Pa).
- Pa poisoning is probably the most common cause of plant poisoning in wildlife and livestock and can also affect humans.
- Many Pa containing plants are not palatable to livestock when growing and usually are only eaten when other feed is restricted or when incorporated into forage.
- Pas can cause hepatotoxicity and pulmonary toxicity and some Pas are carcinogens.
- Human poisoning and increased long-term cancer risk may arise from food (e.g. milk, honey) contamination as a result of food animal exposure to Pas.
- Risk to public health is reduced by dilution of Pa contaminated food materials, such as milk and honey, during marketing and processing.
- There may be higher risk scenarios associated with locally produced foods in areas heavily contaminated with plants such as ragwort.
- Better control of ragwort should be promoted and its spread prohibited.
- Stock should be prevented from having access to ragwort contaminated land and this land should not be used to produce forage.

02/11/2020

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Sex / Age Male / 3 Years

Fax:

Email: [\[redacted\]@ \[redacted\].co.uk](mailto: [redacted]@ [redacted].co.uk);

Samples

Animal Presented Dead x 1

Sub. Reason

Diagnostic Casework

REPORT 8 (SUPPLEMENTARY)

The test result applies to the sample as received. A sub-sample of the item may have been tested where appropriate.

COMMENTS

The histopathological slides were referred for a second opinion. The histopathologist agreed with the diagnosis and the offered differentials. [redacted] also thought the renal tubular injury may be due to bile acids (so, secondary to the liver damage) and that the liver changes are probably in the order of 2-3 weeks duration.

I would be interested in any further information from the farm and in the results of any blood tests from the cattle that have been with the bull.

10 November 2020

Authorised for e-mail - signed hard copy retained by the APHA.

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From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Subject: I-000-023 - FSI 2020-040 - ragwort toxicity in a bull - official sensitive
Date: 17 November 2020 07:55:48
Attachments: [image001.png](#)

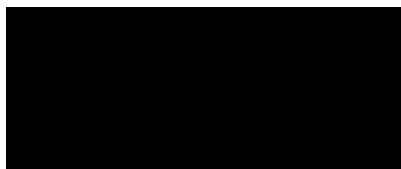
Dear [REDACTED]

Thank you for your email and minute of the above issue.

The reference number is now a new one as we have moved to a new system and not using Memex. This is in the subject title.

I am the lead officer.

With thanks
Regards



FOOD STANDARDS AGENCY

Operations Group: Incidents and Resilience Unit | Incidents Team
7th Floor | Clive House | 70 Petty France | London SW1H 9EX

T: [REDACTED]
M: [REDACTED]
www.food.gov.uk



Our Values: Accountable, Supported, Professional, Innovative, Resilient, Empowered

From: [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>
Sent: 16 November 2020 10:35
To: [REDACTED] <[\[REDACTED\]@food.gov.uk](mailto:[REDACTED]@food.gov.uk)>
Cc: [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>; [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>; [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>; [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>; [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>; [REDACTED] <[\[REDACTED\]@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)>
Subject: FSI 2020-040 - ragwort toxicity in a bull - official sensitive

Hello Incidents

Please see the attached minute outlining the details of a likely case of ragwort poisoning in a bull.

Since the diagnosis was not initially suspected and was then confirmed by histopathology this has not previously been alerted to FSA. There is therefore no ICID number.

[REDACTED]

Kind regards

[REDACTED]

Surveillance and Laboratory Services Division (SLSD)
[REDACTED] VIC Bury St Edmunds and VIC Starcross

Animal and Plant Health Agency (APHA)

Telephone: [REDACTED]; (Office: Sutton Bonington QAU)

Email: [REDACTED] [@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)

Website: www.gov.uk/apha | Twitter: [@APHAgovuk](https://twitter.com/APHAgovuk) | Facebook: [aphagov](https://www.facebook.com/aphagov)

Address: APHA Sutton Bonington, College Road, Sutton Bonington, Loughborough, Leics. LE12 5RB

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Our reference: FSI 2020-040

FSA incident ref number: ICID TBC

POTENTIAL FOOD SAFETY INCIDENT



CPH [redacted]

From: [redacted]
Date: 16.11.2020
Division: APHA/SLSD
Office: APHA Sutton Bonington
Tel No: [redacted]

To: Incidents & Resilience Unit, FSA

C.C.

[redacted], APHA Weybridge	<i>(minute only)</i>
[redacted], APHA Bury St Edmunds	<i>(minute only)</i>
[redacted], APHA Worcester	<i>(minute only)</i>
[redacted] Cattle expert group lead	<i>(minute only)</i>

1. Ragwort toxicity was confirmed by histopathology to have contributed to the wasting and death of a 3-year-old bull at grass with two other suckler cows.
2. The bull initially started to lose condition early on in October 2020. After two weeks it was examined by a private vet as it was anorexic, pyrexia and had some blood visible in the nares. Despite treatment it died one week later and the carcass was submitted for post mortem examination.
3. Gross examination revealed a severe hepatopathy with an enlarged, orange discoloured liver. At the time of death there was also abdominal haemorrhage, peritonitis, abomasal ulceration, haemorrhagic enteritis, excess sand in the abomasum and acorns in all four stomachs.

4. The microscopic appearance of the liver was highly suggestive of pyrrolizidine alkaloid toxicity although some other toxic plants (eg lantana) and fungal toxins (eg aflatoxins) can produce similar changes. In addition to this, there was a mild renal tubular injury, which may be the result of hypoxia (circulatory failure) or exposure to nephrotoxins (including acorns). The necrotising/ulcerative lesions in the abomasum were considered non-specific and likely to reflect an acute, terminal event.
5. It was considered by the investigating officers and farmer that the source of ragwort was most likely to be associated with plant growth (and wilt) in the field rather than in conserved forage.
6. Cattle have now been housed and there is no evidence of other affected animals.
7. APHA gave advice to the farmer on animal health and welfare and also food safety.
 - Ragwort is one of many plants that contain pyrrolizidine alkaloids (Pa).
 - Pa poisoning is probably the most common cause of plant poisoning in wildlife and livestock and can also affect humans.
 - Many Pa containing plants are not palatable to livestock when growing and usually are only eaten when other feed is restricted or when incorporated into forage.
 - Pas can cause hepatotoxicity and pulmonary toxicity and some Pas are carcinogens.
 - Human poisoning and increased long-term cancer risk may arise from food (e.g. milk, honey) contamination as a result of food animal exposure to Pas.
 - Risk to public health is reduced by dilution of Pa contaminated food materials, such as milk and honey, during marketing and processing.
 - There may be higher risk scenarios associated with locally produced foods in areas heavily contaminated with plants such as ragwort.
 - Better control of ragwort should be promoted and its spread prohibited.
 - Stock should be prevented from having access to ragwort contaminated land and this land should not be used to produce forage.

, **Chemical Food Safety**

Appendix 10

START OF REPORT

Test Report

Access Number: A049577
Farm / Farmer: [REDACTED]
Animal ID: [REDACTED]
Practice Ref: [REDACTED]
Age / Gender: 3 Yrs
Species / Breed: Bovine / Aberdeen Angus
Request Date: 15 October 2020
Report Date: 15 October 2020
Report Number: Report 1 (Final)

Profiles:

Code	Name	Price
FGEN	General Biochemistry Profile	
FAHAE	Haematology Screen	

Samples Received:

Sample Date: 14/10/2020

1 x Clot 1 x EDTA

Test Results:

Haematology	Result 1	Result 2	Interval
RBC	6.56 x10 ¹² /L		5.00 - 9.00
Haemoglobin	13.5 g/dL		8.0 - 15.0
PCV	40.0 %		24.0 - 40.0
MCV	H 61.0 fL		40.0 - 60.0
MCH	H 20.6 pg		11.0 - 17.0
MCHC	33.8 g/dL		30.0 - 36.0
Platelets	L 195 x10 ⁹ /L		200 - 800
WBC	H 14.2 x10 ⁹ /L		4.0 - 10.0
Film comments	Manual PCV performed Platelets clumped in film Platelet count above should be considered a minimum value. Platelet estimate on smear appears adequate (200 to 800 x10 ⁹ /L).		

Film examined by, [REDACTED]

Chemistry	Result	Units	Interval
Total protein	79.3	g/L	62.0 - 84.0
Albumin	32.8	g/L	26.0 - 39.0
Urea	4.3	mmol/L	2.0 - 6.6
Creatinine	H 219	µmol/L	40 - 170
GLDH	H 57.0	U/L@37°C	0.0 - 25.0
GGT	H 584.2	U/L@37°C	0.0 - 35.0
BHB	0.28	mmol/L	0.00 - 1.20
NEFA	H 1032	µmol/L	0 - 600

Comments:

Results enclosed (15.10.20): Haematology & biochemistry

There is a mild leukocytosis present suggestive of inflammation or infection.

GGT is high and indicative of significant hepatobiliary stasis. Is there any evidence of photosensitisation - e.g. hyperaemia of the nares? The depression, pyrexia and high GGT could be consistent with hepatogenous photosensitisation. Liver fluke could be a further possibility for the high GGT.

GLDH is mildly raised and indicative of mild hepatocellular damage.

NEFA is moderately raised and indicative of a moderate degree of fat being mobilised to meet energy needs.



END OF REPORT

This report is intended solely for the recipient, results only relate to the items submitted and tested, and it should not be reproduced except in full.

PART 1

		FSI NO:	2020-040
Reporting VIC:	Shrewsbury	Contaminant	Presumptive Pyrollizidine alkaloid toxicity
Proposed date of visit:	N/A	Veterinary Officer:	[REDACTED]

Section A

Name and address of owner of livestock affected:		[REDACTED]
Tel No.	[REDACTED]	[REDACTED]
Person in charge of livestock: <i>(if different from owner)</i>		[REDACTED]
Address of Premises <i>(if different from above):</i>		[REDACTED]
CPH Number:	[REDACTED]	[REDACTED]
Veterinary Practice:		[REDACTED]
Tel No.	[REDACTED]	[REDACTED]

Section B

Animal Details:	Species	Bovine
	Age	Adult
	Purpose	Breeding
	Number involved	One
Suspected source of contaminant <i>if medicine complete section D</i> <i>if feed/feed supplement complete section F</i>		Plants containing pyrollizidine alkaloids
Details of produce likely to pose an immediate risk to the food chain.		None
Are there any on-farm sales?		No
Name and telephone number of milk purchaser: <i>(if applicable)</i>		

Have livestock or products likely to be contaminated already been moved off the farm? If yes, give details:

No

Section C

History of the incident:

A 3-year-old bull had been off colour for two to three weeks and was found dead on the morning of 21st October. It had been at grass all summer with a few cattle but had been noticed off colour two to three weeks previously and started to loose condition. It was brought inside and given some corn which it ate slowly. It was examined by the PVS one week before it died and found to be pyrexia and had a small amount of blood around the nostrils. It was blood sampled and treated with antibiotics and anti-inflammatories. Biochemistry and haematology results from blood taken a week before it died revealed a mild leukocytosis suggestive of inflammation or infection, raised GGT indicative of significant hepatobiliary stasis, GLDH mildly raised and indicative of mild hepatocellular damage, NEFA moderately raised and indicative of a moderate degree of fat being mobilised to meet energy needs.

The bull had appeared stable but was found dead in the morning on 21st October. It had not received vaccines and was probably wormed in the spring.

Main clinical signs:

Off colour over 2-3 weeks then loss of condition, pyrexia before death.

Main post-mortem findings:

Severe hepatopathy was present with an enlarged, orange discoloured liver. This was consistent with the biochemistry results from a sample taken a week before the bull died. At the time of death there was also abdominal haemorrhage, peritonitis, abomasal ulceration, haemorrhagic enteritis, excess sand in the abomasum and acorns in all four stomachs.

Initial laboratory results (please include APHA Ref. No(s)):

26-C0141-10-20

Summary of gross findings: Severe hepatopathy was present with an enlarged, orange discoloured liver. This is consistent with the biochemistry results from a sample taken a week before the bull died. At the time of death there was also abdominal haemorrhage, peritonitis, abomasal ulceration, haemorrhagic enteritis, excess sand in the abomasum and acorns in all four stomachs.

Summary of histopathology: The most significant changes appear in the liver, where there is evidence of chronic hepatotoxic injury. The microscopic appearance of the liver is highly suggestive of pyrrolizidine alkaloid toxicity, but some other toxic plants (eg lantana) and fungal toxins (eg aflatoxins) can produce similar changes. In addition to this, there is mild evidence of renal tubular injury, which may be the result of hypoxia (circulatory failure) or exposure to nephrotoxins (including acorns). The necrotising/ulcerative lesions in the abomasum are non-specific, they would appear to have a vascular basis (ie infarction), but there are no infiltrates around vessels to implicate MCF, say, and the vascular injury might be the result of toxins or endotoxins absorbed across the mucosal barrier, or due to circulating toxins or metabolites secondary to the hepatic or renal injury. On balance, it was felt that the abomasal lesions were acute, terminal events, of secondary significance to the chronic and severe hepatopathy.

The histopathological slides were referred for a second opinion. The histopathologist agreed with the diagnosis and the offered differentials. He also thought the renal tubular injury may be due to bile acids (so, secondary to the liver damage) and that the liver changes are probably in the order of 2-3 weeks duration

Section D

For use where a medicinal product is thought to be involved.	
Name of product:	
Manufacturer/product licence holder:	
Batch Number and expiry date:	
Licensed for this species Yes/No:	
Dose given:	
Veterinary Officer	Date

FSF 1: PART 2

FSI NO:	2020-040
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Full chronological history of incident (with dates):

September 2020 – 3 yr old Aberdeen Angus bull at grass with two suckler cows for serving. It had been at grass all summer
1st October 2020 - bull noticed off colour, gradually loosing condition
14th October 2020 – bull housed and examined by the PVS, pyrexia, small bit of blood by nares, blood sampled for biochemistry and haematology. Bull would eat some corn slowly. No scour.
21st October 2020 – bull had been stable all week but found dead in the morning. Bull received at APHA Shrewsbury for PME
21st, 30th October, 6th November discussed findings with the PVS who had close dealings with the owner. Little ragwort was thought to be present but there was some comfrey, and the fields are adjacent to urban area so cannot rule out fly tipping. PVS will try to collect blood samples from cows that have been with the bull to assess liver function. Owner reports no other cattle unwell.

No. of animals/birds in exposed group	3	No. dead	1	No. presently showing clinical signs	0
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Farm visit findings:

N/A

How has access to contaminant been prevented?	Yes, cattle housed.
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What measures have been taken to prevent reoccurrence?	Owner aware to prevent access of cattle to any potential toxic plants whether present in conserved forage, in the pasture or from potential fly tipping.
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Has the owner signed agreement to a period of voluntary restriction?

Yes/No	No	For how long?	N/A	No. of animals under restriction	0
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Copies of the following should be e-mailed if available:

- PM and/or laboratory reports
- Farm visit advisory report
- Fax signed voluntary agreement , schedule, lead report (if appropriate)



.....November 10th 2020.....

From: [REDACTED]
To: [REDACTED]
Subject: RE: VISI FES 200 - Plant poisoning
Date: 02 November 2020 15:41:04

On initial enquires the owner doesn't think there has been access to ragwort but the PVS is making further enquiries.

[REDACTED] is going to ask [REDACTED] for an opinion on the histopathology.

I have started a FSI but will need to wait until I go back in to the lab to look at all the case notes if that's OK.

[REDACTED]

From: [REDACTED]
Sent: 02 November 2020 15:24
To: [REDACTED]@apha.gov.uk>
Subject: RE: VISI FES 200 - Plant poisoning

Hi [REDACTED]

As it's a likely ragwort poisoning could you complete an FSF form and so I have some idea of group size and whether exposure to ragwort was considered to be forage or whilst grazing.

It'll be FSI 2020-040.

Many thanks

[REDACTED]

From: [REDACTED]
Sent: 02 November 2020 15:20
To: [REDACTED]@apha.gov.uk>
Subject: RE: VISI FES 200 - Plant poisoning

[REDACTED]

26-C0141-10-20

Please see a potential ragwort and acorn poisoning case.

Please let me know if you need more details and an FSI Part 1 or for me to send you the other reports from this case.

I have sent out the ragwort autotext from VISI 200.

<< File: 26 C0141 10 20-06.doc >>

<< File: 26 C0141 10 20-01.doc >>

Thanks

[REDACTED]

[REDACTED]

[REDACTED]

Animal and Plant Health Agency (APHA)

Shrewsbury Veterinary Investigation Centre

SY1 4HD

T: [REDACTED]

E: [REDACTED] [@apha.gov.uk](mailto:[REDACTED]@apha.gov.uk)

Website: www.gov.uk/apha | Twitter: [@APHAgovuk](https://twitter.com/APHAgovuk) | Facebook: [aphagov](https://www.facebook.com/aphagov)