THE WOOL PRESS

May/June 2020 Volume 323

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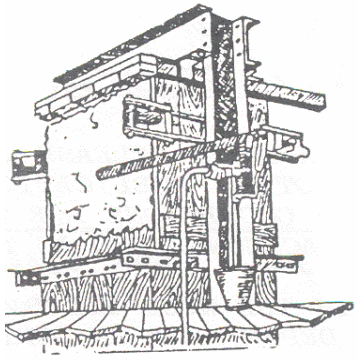
In this issue...



Edited By Tracy Evans
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EDITORIAL

With Covid-19, camp farms have been more isolated than usual. The cancellation of Famers Week 2020 has left many wondering how we can all come together as a community to talk about the future and address current issues of concern. Unfortunately, advice from the Rural Business Association (RBA) is that circumstances remain unsuitable to hold a mini-Farmers Week in July/ August. Therefore, the Department of Agriculture (DoA) invites you to participate in the "2020 Farmers Week at Home" visits to be held over winter 2020.

We envisage this will be a visit from DoA Agricultural Advisors and Veterinary staff (if required) to discuss your own needs and opportunities with tailored support from us. An email on how to book a visit to your farm will be in your in-box shortly. These will be individual visits sticking to the social distancing guidelines. It is envisaged that we will combine trips to visit the Island farms and West Falkland in week blocks, whilst visiting farms on the East Falklands as day trips. If the guidelines change we will be looking to hold small 'impromptu' community events in addition to Farmer's Week visits.

Soils are the powerhouse of our production system and Jim McAdam (Queen's University Belfast) Matt McNee (DoA Falkland Islands) and Sergio Radic (University of Magallanes, Punta Arenas) remind us of the soil types we have. This is extended in their article on soil acidity and aluminium. These articles are the first of a series that will review the soil projects previously conducted on the Falkland Islands and also to outline opportunities to use soil maps in livestock production.

In this month's edition of the Wool Press it is again that time of the year for worming. Ross Milner has outlined both the commercial and home slaughter best practices and Zoe Fowler has highlighted how to interpret trace element results that come back from post mortem liver tests. Many farmers have provided samples to Dominic West for his Hydatid disease PhD. In this edition Dominic explains what is happening in the trial. Denise Blake reminds us of the opening of the Environmental Studies Budget (ESB) round and some of the ESB's recent successes.

The National Beef Herd (NBH) has over the years provided improved genetics to Falkland Island farmers and now with an effective AI program established the NBH has been disbanded as it is no longer required. This is reported in the Saladero News alongside the activities that are occurring at Saladero preparing the ewes for an excellent 12 months ahead.

In conclusion I would like to thank all farmers and the wool agents for their cooperation and support of the Covid-19: Wool Producers Assistance Scheme 2020. The roll out is going smoothly and at the time of writing this editorial the prices to be offered are being calculated by the DoA. The scheme has been designed to help with cash flow and we envisage the first purchases should occur in July 2020.

Tom McIntosh
Senior Agricultural Advisor

DOG DOSING DATES FOR 2020/2021

Date	Drug
~~Wednesday 22nd January 2020~~	~~Drontal~~
~~Wednesday 26th February 2020~~	~~Droncit~~
~~Wednesday 1st April 2020~~	~~Droncit~~
~~Wednesday 6th May 2020~~	~~Droncit~~
~~Wednesday 10th June 2020~~	~~Droncit~~
Wednesday 15th July 2020	Drontal
Wednesday 19th August 2020	Droncit
Wednesday 23rd September 2020	Droncit
Wednesday 28th October 2020	Droncit
Wednesday 2nd December 2020	Droncit
Wednesday 6th January 2021	Drontal

Regular weighing - it is important to keep a check on dog's weights to ensure correct dosage is being given.

All dog owners are responsible for worming their own pets. Please remember to contact the Veterinary Office and confirm this has been done. After normal working hours, please leave a message or email.

The Falkland Islands Government

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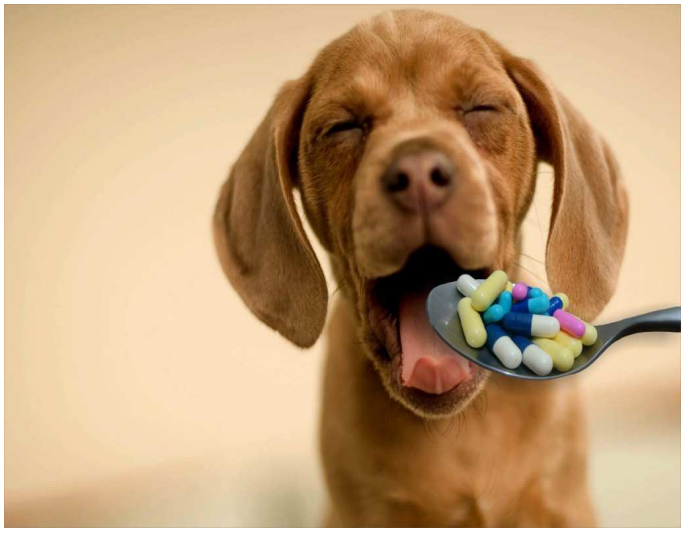


SEEN ANYTHING STRANGE LATELY??

IF SO CONTACT THE DEPARTMENT OF AGRICULTURE ON 27355 OR VETERINARY SERVICES ON 27366

The Slaughter of Livestock and Production of Meat in Camp, Guidelines for Safe and Healthy Production and Supply to the Final Consumer

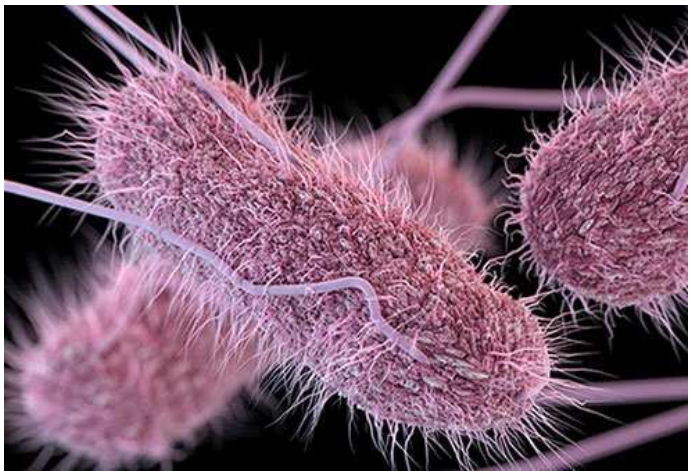
By Ross Milner

Many farmers in the Falkland Islands who slaughter livestock for their own consumption are exempt from detailed meat hygiene regulations. Sale of up to 12 cattle and 240 sheep a year directly to the final consumer is also permitted, but the Public Health Ordinance requires farmers who produce meat for sale to do so in a safe and hygienic manner.
Where this is not done a farmer may face inspection and prosecution or may be liable in civil law for damages resulting from the sale of unhygienic or contaminated products.
For peace of mind I have compiled a check list that a farmer can use to demonstrate good hygiene is practiced with the intention of producing and selling a product that is safe and wholesome to eat, whether for your own family or for commercial sale.
In doing so I am well aware that most farmers are experienced and competent slaughter men and butchers, but it may be a useful exercise in seeing if there is anything that can be learned from the checklist.

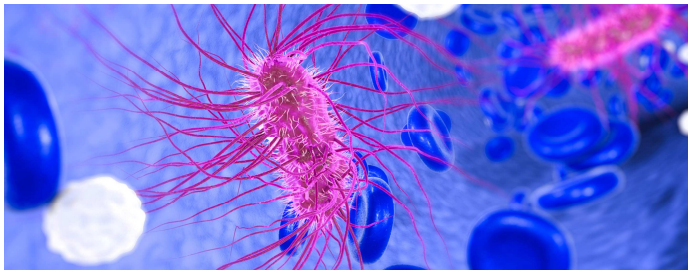
Compliance with all the details in the checklists will depend on how much of a commercial enterprise is being conducted but the basic principles remain the same and are quick, easy and cheap to attain:

1. Keep yourself clean
2. Keep your equipment and work surfaces clean
3. Work in a clean environment
4. Observe temperature controls
5. Observe the animal welfare code
6. Keep farm records up to date
7. Observe safety protocols

Meat prior to slaughter has very little bacteria but is in very close proximity to the skin and gastro intestinal tract which has an extremely high bacterial count. A single bacterial cell can multiply to produce 1 million bacteria in the right conditions in as little as 7 hours. Contaminated meat will spoil quickly and have a very short shelf life and may contain harmful bacteria such as E Coli or Salmonella.



An image of the Salmonella bacteria



An image of E Coli bacteria

The Check list for production and sale of safe meat to the final consumer is as follows:

1. Keep yourself clean:

- **Any person who is ill, for example with flu like symptoms, vomiting or diarrhea is not involved in the production of food**.
- It is essential that staff handling food for commercial sale are in good health and undergo training on health risks and basic food hygiene. An online course is available through Falklands College and would be an invaluable resource for anyone interested in sale of meat to the final consumer.
- Work is carried out in clean overalls and a waterproof apron or waterproof overalls.
- Hands and aprons are washed and disinfected at regular intervals. In the field buckets of hot soapy water and a clean

scrubbing brush will suffice, for commercial production wash basins with taps and clean warm running water would be needed.
- A critical point to stop, clean and disinfect hands and apron is after skinning and removing a hide which will be heavily contaminated with bacteria, before dressing the carcass commences.

2. Keep your equipment and work surfaces clean:

- Implements such as knives, saws and scabbards are cleaned and sterilized at regular intervals and whenever they become dirty or contaminated.
- Fat and blood needs to be scrubbed clean before a knife or saw can be sterilized.
- For field slaughter and dressing, a large flask or bucket of boiling water may suffice, for more commercial meat production a hot water barrel or knife and saw sterilizers are needed.
- Knives and saws are sterilized by immersing in hot water which is at least 82 degrees centigrade or by a method that has the same effect. A thermometer that can read 82 degrees is useful but basically water that is too hot to place hands in for more than a second or two. The handle as well as the knife should be sterilized.
- A clean 2 knife policy is used to prevent a dirty knife contaminating meat, for example use a sterile knife to cut through skin which is heavily contaminated and a second sterile sticking knife for slaughter or when skinning an animal. One knife is used for work while the second knife is in a sterilizer.
- Knives and other work implements should be made of stainless steel and have metal or plastic handles, implements with wooden handles are not used as these become impregnated with bacteria.
- Meat is cut and deboned on an uncluttered work surface, ideally made of stainless steel that is cleaned and disinfected at regular intervals.
- All equipment is cleaned and sterilized before and after use. Some machinery such as saws, mincers and sausage makers will need to be taken apart to ensure all cracks and crevices are clean and free of meat residue.
- Packaging and containers for meat storage and transport needs to be spotlessly clean.

3. Work in a clean environment

- Meat production is carried out a clean environment.
- It is better to carry out small scale slaughter on a clean well drained grass paddock than inside a dirty and dusty building. The more commercial end of production requires clean buildings free of dust and dirt and a supply of clean running water.
- Control measures are in place to prevent contamination by flies and vermin and access by other animals such as dogs, cats, birds and livestock.
- A clean livestock slaughter policy is observed; dirty animals covered in dust, mud or faeces are not slaughtered due to the significant increase in the risk of meat contamination.
- Shearing of sheep prior to slaughter also significantly reduces the risk of dirty fleece and wool contaminating the meat surface.
- Meat should not come into contact with walls, floors, machinery, bins and other unsterilized surfaces.
- Meat is stored and transported in clean fridges, freezers and vehicles.
- These are cleaned and where necessary disinfected after use. After cutting, meat should either be packaged or where unpackaged kept in a manner that prevents fluid dripping from one section of meat dripping onto another to prevent cross contamination.
- Any meat that is diseased or contaminated is rejected and does not come into contact with clean meat. This can be trimmed using a sterile knife. Washing a carcass or using a wet cloth will only spread bacterial contamination further.
- The outside of a dirty hide or fleece is prevented from rolling over during skinning and touching the meat surface. This is one of the top causes of meat contamination.

Continued on pages 6 & 7

- The operator is proficient at removing the alimentary system without rupture or leakage of gut contents.
- Bacteria such as E Coli, Campylobacter and Salmonella can live in the intestines of livestock. The oesophagus and rectum need to be carefully incised around and enclosed in a small plastic bag and ligated before the alimentary tract is removed. If there is any leakage of faecal or gut material, or burst abscesses or cysts, affected meat needs to be trimmed and rejected and the knife used cleaned and sterilized.
- In a more commercial setting; slaughter, dressing, cutting and storage should all be carried out in separate areas to reduce the risk of cross contamination.
- All equipment and facilities are cleaned after use. Implements and packing material are stored in a clean environment free of dust, flies and vermin.
- If slaughter is carried out in a clean well drained paddock then different parts of the field should be used each time meat production is carried out.
- Buildings should be well drained and have smooth concrete walls and floors that can be washed and cleaned.
- Meat processing does not take place near manure piles or areas where waste products of meat processing are stored or disposed of.
- Care must be taken that dogs do not gain access to waste offal, especially of elderly cull ewes with an increased risk of hydatid disease.
- Slaughter and meat processing does not contaminate any water source used by animals or humans.

4. Observe Temperature controls

- Meat is stored and transported in a manner that prevents meat spoilage and contamination.
- The higher the temperature, the faster bacteria can multiply on meat and cause contamination.
- Where refrigeration is unavailable owing to technical reasons (e.g. no power supply), the shelf-life of meat is reduced to days or hours, not weeks. In this situation processing storage and transport of meat is best carried out in winter months.
- Meat needs to be reduced to below 7 degrees or frozen as quickly as possible to preserve meat quality.
- Most commercial cuts of meat will have a shelf life of 10 to 12 months when frozen at or below -18 degrees centigrade.

5. Observe the Animal Welfare Code

- Animals are slaughtered in a manner that has regard to animal welfare and "prevent any unnecessary pain, suffering and stress" - Animals (Welfare and Protection) order 2016.
- The slaughter of animals is carried out by a person competent at carrying out the process correctly in a calm and efficient manner.
- Animals are rendered instantly unconscious with a captive bolt or firearm of sufficient caliber before being bled out.
- Firearms or captive bolts are well maintained and in good working order, a backup firearm is recommended in case needed.
- Stunning and killing should be out of sight of other animals and the animal observed for any failure of the procedure for example a blink reflex, breathing, lifting of head or vocalizing, in which case a second attempt should be made to stun or kill before being bled out.
- If an animal is found injured in camp, for example a broken leg, an emergency slaughter should be carried out where the animal has been found as movement would cause considerable pain.

A useful guide to humane slaughter and bleeding out, including emergency slaughter in the field, can be found here : https://www.hsa.org.uk/bleeding-and-pithing/bleeding - but please note pithing is no longer permitted due to the risk of transmissible spongiform encephalopathies (TSE).

6. Keep farm records up to date

- A farm medicines record book is kept with details of medicine used, date of administration, identification of animal, meat withhold period and any other relevant information.
- Department of Agriculture (DoA) is

notified of cattle killed and their cattle ID cards returned to the DoA.
- Sheep and pigs are recorded in the farm disposal records and submitted in annual returns.
- For commercial sale of meat, it is recommended this is labelled with date of production and the words “defrost and cook thoroughly” to mitigate any risk of poor food preparation by the final consumer.

7. Observe farm safety protocols

- Animals are slaughtered in a manner which is safe for the slaughter man and anyone else present as well as the animals being slaughtered.
- Cattle would best be placed in a quick release stun pen or a crush or race which can be opened immediately after stunning and the animal hoisted and bled out without delay. Pens, crushes, and hoists need to be sturdy and of sufficient strength, well maintained and in good working order.
- A chain mail glove should be worn when using sharp knives. Accidents with sharp knives are common and not good for busy farmers far from medical assistance in remote areas of camp. If a farmer ends up with a badly cut or infected tendon in his hand this may affect future ability to work and it is well worth the cheap investment in additional protection.
- Firearm safety is observed.
- Animals that are sick, showing signs of disease or emaciated should not be slaughtered.

Conclusion

By following simple hygiene procedures, a healthy and safe product can be produced for home consumption and for commercial sale in small quantities directly to the final consumer.

For any significant commercial production further investment in equipment, buildings and refrigeration is needed and it may just be a lot easier for a busy farmer to send cattle to Sand Bay Abattoir

Appendix 1 list of equipment useful for meat production in camp

For home consumption:

- Captive bolt (humane stunner) or firearm of sufficient caliber, sticking knife (15 cm sharpened on both sides), skinning knife (15 cm curved), a sharpening steel or stone, meat saw, and means to sterilize implements e.g. with hot water , means to scrub and wash hands and apron, a scabbard for holding knives and a chain mail glove, 2 knives for dressing, several buckets.
- In the field a large flask or buckets of boiling water may suffice for knife and saw sterilization and buckets of hot soapy water for cleaning hands and aprons.
- Knives should be kept sharp and other equipment in good repair.
- All equipment should be made of stainless steel or plastic, be rust resistant and easily cleaned and sanitized.
- For the cutting area a sturdy cutting table with plastic or stainless steel top, cutting knives and saw, knife sterilizer or hot water container and a sink with taps.

For more commercial meat production:

- Block and tackle or chain hoist strong enough to hold the weight of cattle.
- Chocks or skinning rack (dressing cradle).
- A strong beam, tripod or track 2.4 to 3.4 meter from floor.
- Spreader - gambrel or metal pipe.
- Working platforms.
- Pot, barrel or sterilizer system for sterilizing implements thermometer registering up to 84°C.
- Wash basin with arm or foot operated tap handles and soap dispenser.

Useful additional equipment for commercial meat production include:

- Knocking pen, bleeding hooks (for vertical bleeding).
- Blood-catching trough.
- Ash trough (tripe).

If anyone has any questions or suggestions please email me, Ross Milner at rmilner@doa.gov.fk

What Do My Trace Element Results Mean?

By Zoe Fowler

It is not uncommon, in times of poor productivity, ill thrift or poor reproductive performance to consider measuring the trace element levels in livestock. Trace elements have a huge range of roles within normal physiology and a chronic deprivation of one or more can have noticeable effects. It must be remembered that an overall gross deficiency of metabolisable energy and protein (especially overwinter in the Falklands) might be the first problem to consider.

Trace element packages from the laboratory at the University of Nottingham that we use include Selenium (Se), Copper (Cu), Zinc (Zn) and Cobalt (Co).

When you get the results some are quite straightforward (i.e. Zn and Co) they give you one figure and a helpful comment such as high, marginal or low so you can tell at a glance what the levels were at the time of blood sampling. Zinc and cobalt have to be present in very high levels to cause any sort of toxicity so often the best way to diagnose a deficiency, especially of cobalt, is simply to supplement and monitor the outcome. Zinc deficiencies are rare but cobalt deficiency is a known problem in some parts of the Falklands.

When it comes to looking at your results for selenium and copper you start to see several different levels of various related enzymes and proteins as well as the trace element itself. While the lab always usefully comments on whether these are normal, low, high or marginal, it's taken me a while to really figure out exactly what these things, all together, actually mean.

Selenium (Se)

In ruminants, only about 50% of the total selenium is in the blood, the rest is stored (mostly in muscle). Two thirds of the selenium that is in the blood is incorporated into the red blood cells and exists in the form of a selenium containing enzyme called glutathione peroxidase. Adult red blood cells cannot make enzymes or proteins so these selenoenzymes are incorporated into the red blood cell when they are made. Red blood cells live for 3-4 months, so when you have spun down your whole blood sample and released the glutathione peroxidase, what you are measuring is the level of this enzyme that was present several weeks/months ago when the blood cells were made. This is why you may also see the level called 'heamatocrit' on your results, this is a way of measuring red blood cell concentration, so if this is very low due to another disease process you might see low glutathione peroxidase, but an overall deficiency of selenium might not be the reason why. The remaining third of blood selenium that is not involved with the red blood cells can be measured in the plasma and changes much more quickly depending on selenium intake. So the point of telling us both levels (plasma selenium and glutathione peroxidase) is to give you an idea of which direction your selenium supply is going. If the glutathione peroxidase levels are low but plasma selenium is normal it tells you that 3-4 months ago your selenium levels were low (therefore less glutathione peroxidase was made), but they are more normal now so either your supplementation worked, or you don't need to supplement as the levels are going up (maybe because it is spring/summer and levels are naturally increasing in pasture). It also works the other way around. Normal or high glutathione peroxidase levels and a low plasma selenium shows that selenium levels are currently declining.

Copper (Cu)

Copper is where things really get a bit complicated. You get given 4 different levels with your trace element results;

1) Caeruloplasmin (CP).

CP is a copper-containing protein. When copper is absorbed from the intestines it is transported to the liver and incorporated into proteins, of which caeruloplasmin (CP) is one. The rest of the copper is stored. It is in the form of CP that copper is transported to all other tissues from the liver. 70-80% of the copper in the blood exists is in the form of CP.

2) **Plasma copper.**

Plasma copper is the total of all copper in the blood and includes that percentage that is incorporated into CP.

3) The **CP : plasma copper ratio**.

The reason why both CP and plasma copper levels are reported and compared to each other in a ratio is because copper is very easily affected by another element called Molybdenum (Mo) (and by Sulphur as it happens). Molybdenum binds copper making it unavailable to the animal and so via various (and complex) means molybdenum can decrease the CP : plasma copper ratio by either increasing plasma copper (as a reflex attempt to increase free copper) or by decreasing CP activity. This ratio is only valid if the plasma copper level is over 6umol/L – a plasma copper of 6 or lower shows that you have a genuine copper deficiency. You need to look at the CP, plasma copper and ratio all together to figure out if you have a genuine lack of copper OR actually if your copper is being bound up by thiomolybdates. The ratio should be about 2, a ratio of under 1.5 suggests a molybdenum problem. A normal ratio but low values probably suggests a genuine lack of copper.

4) **Superoxide dismutase**.

This is a copper containing enzyme and a bit like glutathione peroxidase, gives you an idea of slightly more historic copper levels so you can determine if the levels are increasing or decreasing. You need to ensure that you sample at least 10 animals for copper averages as there can be a wide natural variation in levels between animals.

I hope this helps you a little bit to understand WHAT the trace element results are trying to tell you. In following articles I will touch a bit more on what the individual trace elements do and what you might see if they are deficient.

Another Use for Man's Best Friend.

By Steve Pointing (with input from Vet Record, Vol 186, No 15)

Is there no end to how we can make use of the superior smelling power of the dog's nose when it comes to assisting man sniff out potential diseases? Dogs have already been trained to recognise people who are infected with malaria and with a variety of different cancers. Now they may be put to use to sniff out passengers arriving at ports and airports who might be infected with the Covid – 19 virus.

The charity Medical Detection Dogs is working with the London School of Hygiene and Tropical Medicine (LSHTM) and Durham University to intensively train its dogs to detect Covid-19 and believes they could be ready in 4 -6 weeks.

If successful the dogs could be used to provide a rapid, non-invasive diagnostic service, potentially at ports and airports where they could be used to identify travellers entering the UK who are infected with the virus. They could also be deployed to do the same in other public spaces. After detection by the dogs, infection would be confirmed by a medical test.

James Logan, Head of the Department of Disease Control at the LSHTM and Director of Research Institute Arctec: "Our previous work demonstrated that dogs can detect odours from humans with a malaria infection with extremely high accuracy – above the WHO standards for a diagnostic tool. We know that other respiratory diseases like Covid-19 change our body odour so there is a very high chance that dogs will be able to detect it. This new diagnostic tool could revolutionise our response to Covid- 19 in the short term, but particularly in the months to come, and could be profoundly impactful"

Dogs will be trained on a dead virus and will then have no contact with the individuals they are screening. Only their handlers will be permitted to touch them, so there is a very low risk of the virus spreading from a dog to its handler.

Man's best friend comes to our assistance yet again.

Saladero News

By Andrew Bendall & Mandy Ford

April – May 2020

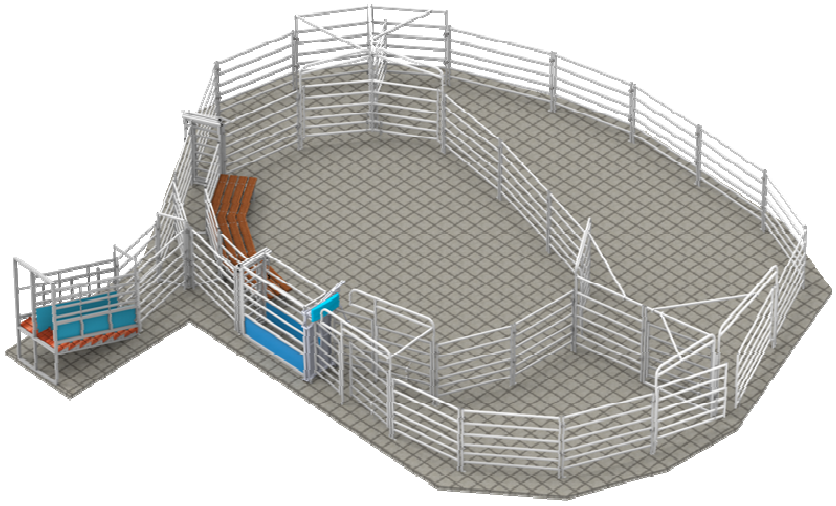
Main events that have been happening over the last couple of months has been preparation for joining and the planning of the dispersal of the National Beef Herd (NBH), which was first started in the late 1990's and had up to 280 animals and certainly played a major role in the establishment of the growth in beef across the Island.

Cattle Heading to Goose Green to be transported to New Haven

Complete Cattle dispersal from Saladero, with the 6 older cattle being sent to FIMCo and 9 younger breeding heifers and 2 steers sold by public tender to Weddell Island. Mandy drove these firstly to Goose Green for ease of loading, and then they were taken to New Haven and transferred into the FIMCo animal crates, with the four 2019 calves going between two horse boxes.

The reason for their dispersal was that the NBH had achieved what it was set out to do. With individual farms now doing their own artificial breeding programs the demand for both sale bulls and lease bulls had diminished.

With cow numbers being less than 10 of a breeding age, it was going to be hard to add value from a genetics perspective compared to what individual farmers could do by importing semen and conducting their own artificial insemination programs.



Graphic design of yards for tender

There will also be a full set of Te Pari Cattle yards including Crush & load bars being put out for tender. These yards are designed to hold 86 mature animals at once. These will be tendered in the near future. Also available may be a portable cattle crush in used condition.

Ewe Joining 2020

This year's artificial Insemination (AI) program has had to be cancelled due to travel restrictions put in place around the Covid 19 pandemic.

Natural mating had to be planned to cover the entire flock. This was done using a program called "matesel" dividing ewes up into mate groups and assigning a team of rams to them, taking into account inbreeding scenario's with the aim of improving the genetic base of the next years lamb drop and creating an even line of rams from a genetic merit perspective.

A ram from Blue Beach Farm was also used with a mating group in the 2nd cycle to enable across flock analysis being done between the National Stud Flock (NSF) and Blue Beach.

Rams were joined on the 11th May and will remain out for two cycles, the ewes went to the rams in great condition, so hoping for a successful compacted lambing. Ewes will be scanned in August.

Rams feeding on lupins pre joining

A group of the shearling ewes were mated, both mated and non-mated will be tracked throughout their life time, their performance and production will be monitored and recorded.

The 2018 crop of ewes will be measured for:

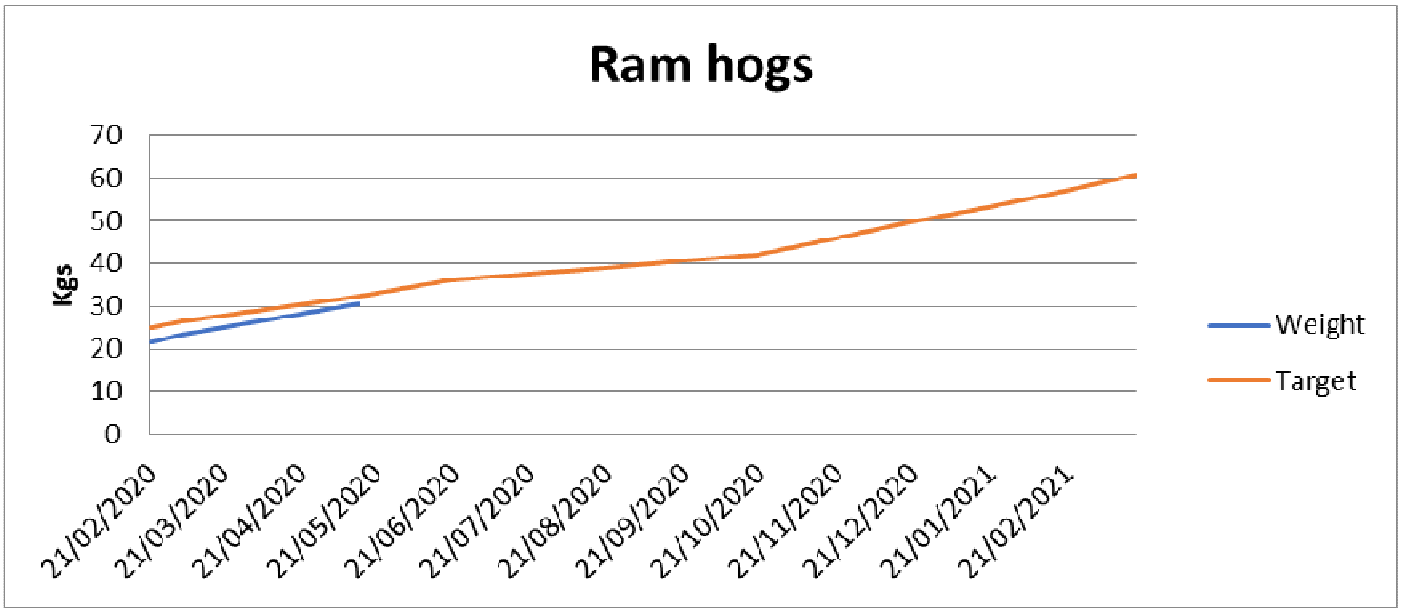
- Weight & Quality of wool produced (Valued)
- Weight of lambs produced annually, (a value will be assigned to each ewe)
- Weight & Body Condition will be monitored and recorded
- Pregnancy scanning vs lamb marking results
- Culls & Deaths will be recorded
- Value of extra feed & animal health products used over & above maintenance will be recorded
- A visual classing of this age group will be done annually (recorded but not actioned)
- Their life time performance will be recorded (Output less Input)

The real purpose of this small trial is not so much around the debate of whether to mate shearling ewes or not and the subsequent effects of, but to shift the emphasis that if we do, what are the successful management practices that we have to do to make it successful.

The bigger issues here are lamb mortality and poor lamb & hogget growth rates, the foundations for both these are largely created during gestation. Possibly more defined as the last 50-70 days of gestation which in turn is having an effect on their life time performance. Not what their offspring will do, but what they will do.

Continued on pages 12 & 13

Ram Hoggets continue to do well as seen by the graph below, with them growing well and on target to hit sale day targets.



Ram Hogget's April 2020

Ewe Hoggets also remain a priority mob also with the aim of having them at a satisfactory mating weight and condition next May to mate, as being well grown will lesson any chance of their being any determent effect of rearing a lamb as a shearling to their life time performance.

Ewe Hogs on the move, May 2020

The wether trial which was reported on in the last Wool Press, continues to be monitored with weights and body condition scores taken throughout the year.

Matt McNee (Agronomist) and I had a great drive around Saladero last month largely looking at re-seeds and winter crops. The massive variation both within and between the re-seeds was very concerning. In this Wool Press there are some very informative articles about peat soils, which highlight some of the issues which may currently be affecting re-seeds and native pastures across the Island.

This is an area both Matt & I feel very strongly about and want to explore further along with the progression of work done in the SAERI soil mapping project, which will provide you with a soil map of your farm.

Sustainable profits from wool are only possible where we maintain soil health and productivity. We must truly look after the “soil bank” to grow successful improved and native pasture forages. This is possible through strategic grazing regimes which allow for adequate resting periods. The main objective should be to enable our pregnant ewes to be appropriately fed in the last trimester of pregnancy.

Hopefully by the next Wool Press, Covid 19 restrictions will have eased even more, the ewes will be scanned with plenty of potential lambs, the sheep yards purchased last year will be put up and yards tidied up at the back of the woolshed.

As we hit the 1st of June, technically the start of winter, temperatures remain relatively mild which will be great at building some feed going into the long period of nil growth.

MID-SIDE SAMPLING

THERE ARE VARIOUS OPTIONS AVAILABLE FOR MID-SIDE TESTING AGAIN THIS SEASON:

Test type	DoA OFDA	NZWTA micron	NZWTA micron and yield	NZWTA micron, yield and strength
Micron	**Yes**	**Yes**	**Yes**	**Yes**
CV of Micron	**Yes**	**Yes**	**Yes**	**Yes**
Coarse Fibres	**Yes**	**Yes**	**Yes**	**Yes**
Staple length micron profile	**Yes**	**-**	**-**	**-**
Yield	**-**	**-**	**Yes**	**Yes**
Length	**Yes**	**-**	**-**	**Yes**
Strength	**-**	**-**	**-**	**Yes**

Please contact Tracy Evans by the 30th June 2020 to advise of your testing requirements for 2020/2021 season

When ordering please include the following:

- Your farm name
- What type of testing you require
- How many of each test type you require and for what animals

If you have never considered mid-side sampling before and would like more information, please contact Tracy Evans on AgrAssistant@doa.gov.fk

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R You Listening

By Dominic West

The current Covid-19 situation has opened a lot of discussion about the use of models to investigate the value of different disease control strategies. I therefore thought this would be a good time to discuss a little bit about how we are planning to use models to get a better understanding of the Hydatid Disease situation in the Falkland Islands. Although we will be using different models to those you will have heard about relating to Covid-19, many of the underlying concepts remain similar, so hopefully this will help people better understand the value of models for both diseases.

The aim of my project is to gain an understanding of the transmission dynamics of Hydatid Disease in the Falklands and to investigate the efficiency of the control scheme currently in place. Ultimately, I am interested in how many infections each infection results in during an infectious period. You may have heard about this in the context of coronavirus as the "R_0" value, or the "basic reproductive number". For pathogens like bacteria and viruses, this is the average number of new infections which would be expected to come from a single infectious host over the course of infection if all hosts in the population were susceptible to infection. For parasites such as *Echinococcus*, it is the average number of mature offspring that would be produced by the parasite over the course of its life if every host in a population was susceptible. Whereas for short - lived infections such as coronavirus, the R_0 largely represents the transmission rate, for
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diseases such as Hydatid Disease, we also need to consider the long periods of time the parasite can survive in the host - which will increase the R_0 considerably. So, in dogs, we need to consider the number of eggs shed into the environment at one time, as well as the length of time a dog is infected for. For sheep, we would need to consider how long sheep survive post infection and how many dogs are exposed to infective offal. An R_0 of less than 1 suggests that the parasite will ultimately become extinct (as each parasite is not replacing itself), whereas an R_0 value of 1 or more will tend to result in persistence of the parasite. In reality, things are more complex than that, and we need to consider individual - level variability in the R_0 and the effect of random variation. However, the R_0 still provides us with a useful metric for considering not just whether a parasite is likely to spread, but also how easily it would be to control. A very high R_0 does not mean all hope is lost - we can implement measures to reduce it (which we then call the "effective reproduction number, R"). In the case of Covid-19, these measures so far have been predominantly based on social distancing, hand washing, closure of shops, schools and workplaces, and contact tracing. In the case of *Echinococcus*, we use regular dog dosing and prevention of dogs getting access to sheep offal to reduce R. Whilst these measures in the Falklands have been effective at reducing R, the persistence of infections in the sheep population mean that some individual parasites at least must have an R of greater than 1. It is not possible to identify these individually, but we can use models to explore where the current system is most likely to allow this to occur. The complex lifecycle and transmission dynamics of parasites like tapeworms make calculating any R value difficult due to there being two living hosts, as well as a reservoir of eggs contaminating the environment - effectively meaning that we need to consider three life stages. In this case transmission is dependent on predator prey interaction (in the Falklands this is ingestion of offal by dogs), along with contamination (with eggs passed by infected dogs likely to persist on pasture for some time). Models therefore need to incorporate the different stages: from the ingestion of parasite eggs by sheep, to persistence in the sheep, to the ingestion of infected offal by the dog, to shedding of parasite eggs in dog faeces, to the persistence of eggs on the pasture. Establishing which of these life stages are most important in maintaining the parasite life cycle is vital in implementing effective control, which we can do using mathematical models. These models are not intended to simulate spread or make predictions, but to allow us to look beyond the noise of the real world and better understand the system as a whole.

Another important aspect of transmission to consider is the variation of transmission between individuals. Calculating R values for an entire population can disguise the variation between infective individuals. This was evident during the SARS epidemic, when a number of 'superspreading events' occurred. This was where several individuals infected unusually high number of uninfected individuals. Studies of host contact rates developed a general idea known as the 20/80 rule, where by 20% of cases cause 80% of transmission. In more complex transmission cycles like Hydatid Disease, the overall infectiousness of a case is influenced by a more complex combination of host/pathogen behaviours and environmental factors, making identification of distinct groups of individual 'superspreaders' more difficult. It is important to incorporate this variation of infectiousness into models of transmission because it can have a large impact on the endemic continuation of a disease. This may also occur in a spatial context, where 'hot spots' of transmission can develop, and potentially lead to the dispersal of a pathogen to less infected areas. I am currently using statistical tools to explore whether there is evidence of these hot spots of transmission in the Falkland Islands, which may give us further clues as to the underlying processes encouraging persistence of the parasite.

Finally, models can be used to simulate the effect of control programs, which can be used to make predictions as well as optimise a control strategy. These are the models many of you will have heard about in the context of Covid-19. Whilst useful, these models often need high quality data to make accurate and reliable predictions. Although we know a lot more about *Echinococcus* than we do about the coronavirus responsible for Covid-19, getting this kind of high quality data for the Falkland Islands will be difficult because the levels of infection are currently so low. We are therefore collecting data on a related tapeworm species, *Taenia hydatigena* (the tapeworm that causes bladder cysts), which has a similar lifecycle to *Echinococcus* but is more common (with up

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to 10% of sheep infected at slaughter in some locations and age categories). This will hopefully shed some light on some of the intrinsic (biological) and extrinsic (environmental) factors that influence the life cycle of the parasite in the Falklands.

Hopefully this article has shed some light on how we use models to control infectious diseases, from theoretical models of complex systems, to data-based statistical models, to more complex simulation models of spread. I want to end by saying that the story does not end there. Models are not a complete solution, and if Covid-19 has taught us anything it is that we need the input and cooperation of people on the ground if a control scheme is going to work. Working closely with you all is central to my project, and I hope to see you all again sometime soon!

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SOILS IN THE FALKLANDS

By Jim McAdam, Matthew McNee & Sergio Radic

The Origin of Falkland Soils

How has soil developed in the Falklands? Soils are a function of the bedrock and past and present climates. Ice sheets in the last world glaciation, between 14,000 and 25,000 years ago did not completely cover the Islands. Thus, the mixing of material that occurs during glaciation did not obscure soil parent materials. Instead, the Falklands lay in a “peri-glacial” environment, around and near ice caps, but not below them. At that time, the Falklands climate was very cold, freezing and thawing the soil by season, and even in shorter cycles. The result was that rock outcrops were left intact, slopes were smoothed by the process and upstanding stones were pushed into ‘stone runs’. Rock building stopped in the Falklands about 250 million years ago, and the Islands were in their present position by about 150 million years ago. That crucially means that the Falklands have no rocks from the most recent geological periods of Jurassic, Cretaceous and Tertiary, which usually contain lime-rich rocks. The loss to the Falklands of these lime-rich rocks is critical from a soil composition point of view-there are no basic (alkaline) rocks to counteract the acidity in the soils.

Mineral Soils

The mineral soils of the Falklands have developed by chemical and physical changes from the underlying rocks. What matters is not that the rocks are old or ancient in geological time, but that they are all acid or very acid – as are the related soils. The main difference among the rocks is between the hard, quartz-rich rocks of the mountains lying mainly above 500m (Port Stanley and Port Stephens formations), and the soft rocks of silt stone, mud stone and tillite which form the lowlands (Fox Bay, Port Philomel, Fitzroy and Lafonia formations). The fine soil material of the latter group contains mainly silt and clay particles, and these have a better mineral nutrient store than the quartzite hard rocks. The soils of the latter have very low fertility and thus are likely to need relatively more inputs to improve them for agriculture. The differences in soil nutritional quality are generally reflected in the vegetation. Fine grasses grow in small pockets of the most fertile mineral soils on the islands and large areas of lowland whitegrass are more fertile than mountainous zones which are inhabited by shallow rooted woody shrubs, ferns and mosses. Invasion and woody-thickening of productive grassland areas by woody shrubs like the Diddle-dee is common in rangeland grazing systems world-wide. This phenomenon can indicate a reduction in the nutritional quality of mineral soils, perhaps as a consequence of a changing hydrological cycle and land drying out in line climate change predictions. This is discussed in more detail in relation to peat soils.
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Aluminium in Falkland Soils

Falkland soils are known to have exceptionally high levels of Aluminium (Al). Dr Phil Stone, an expert on Falklands' geology writes "Geologically, in the rocks, Al will be held in silicates (feldspar etc) and clay minerals. So you would expect a big difference in the Al content of the Port Stanley quartzite at the low extreme and the mudstones and clay-rich sandstones of the Fox Bay Formation and Lafonia Group at the high extreme. Also, there is quite a lot of feldspar in the Port Stephens quartz-sandstones which would boost their Al levels, and typically rocks have high Aluminium Oxide contents of 12-15%. From comparisons with other areas, the sedimentary rocks might be expected to range from about 5 percent up to about 12 percent. Consequently, soil levels in the Falklands are uniformly high despite the variation in rock types. This may be because there is a layer of clay-rich, loose superficial deposit covering the solid bedrock in the Falklands which is overlain by the peat. This layer contains a lot of kaolinite (a hydrous Al silicate) probably derived from the weathering break-down of feldspar and it may have been relatively uniformly distributed across the islands by wind before "recent" soil formation started". When loss of peat cover exposes this layer, it is easily dried and dispersed by wind which can lead to deep scalds down to bedrock and eroded hillsides.

This is very important for agriculture as any practice which releases more Aluminium into the soil profile is likely to be detrimental to plant growth-further exacerbated by the acid soils. Legumes like clover and, to a lesser extent, lotus are particularly affected by exchangeable aluminium in the soil. This is probably why we have no legumes in the native flora of the Falklands, but from a forage perspective, legumes with their high protein levels and biological nitrogen fixation ability are potentially very important for animal nutrition. Samples collected during the soil survey project have been analysed for exchangeable Aluminium and we will deal with the legume-aluminium issue in future articles.

Peat Soils

Peat is formed where environmental conditions prevent or greatly slow down the decay of dead plant material. These undecayed remains gradually accumulate with other plants continuing to grow on the surface and slowly add to the accumulating organic matter. In most areas of the world where there are peaty soils, the main cause is high rainfall and water-logged conditions preventing the growth of the organisms that drive decomposition. However in the Falklands it is likely that it is low temperatures and wind driven evapotranspiration that restrict the growth of decomposing bacteria and cause peat to accumulate. Falkland's climate is close to semi-arid therefore moisture in peat is valuable. Peatland initiation estimates are quite variable across the Falklands and date back as far as the pre-Holocene era. Annual carbon accumulation rates also range widely but are highest in tussac peat, likely due to high nutrient input from marine birds and mammals.

Peat and peaty soils are an important carbon sink, and are our most stable, long-term land-based carbon storage resource. Peatlands will play a key role in addressing the challenge of climate change. However, climate change predictions are for conditions which make erosion a greater risk so particular care will need to be placed on sustainable soil and vegetation management.

From previous research projects on the risk to the Falklands posed by climate change, key areas identified where soils play a major part are (1) drying-out and larger soil-moisture deficits impacting plant growth (2) changes in soil organic carbon (3) soil erosion. Climate change is predicted to increase soil moisture deficits with potentially large knock-on effects for plant growth and the soil functions normally associated with peats e.g. slow nutrient cycling, carbon sequestration. In the Falklands, water losses through evapotranspiration during spring and summer are predicted to increase, with a swing towards a greater increase in the spring soil-moisture deficit and only a small increase in those that occur later in the season. The bigger picture is that predicted climate change is likely to lead to Falkland peatlands as a whole becoming a carbon source rather than sink. In the more immediate future, increased spring soil-water deficits have obvious implications for productive and profitable agriculture on the islands. Of note, are effects on the quantity and quality of feed available for grazing livestock transitioning out of a winter-feed deficit and the survivability of lambs. Spring soil water deficits also have

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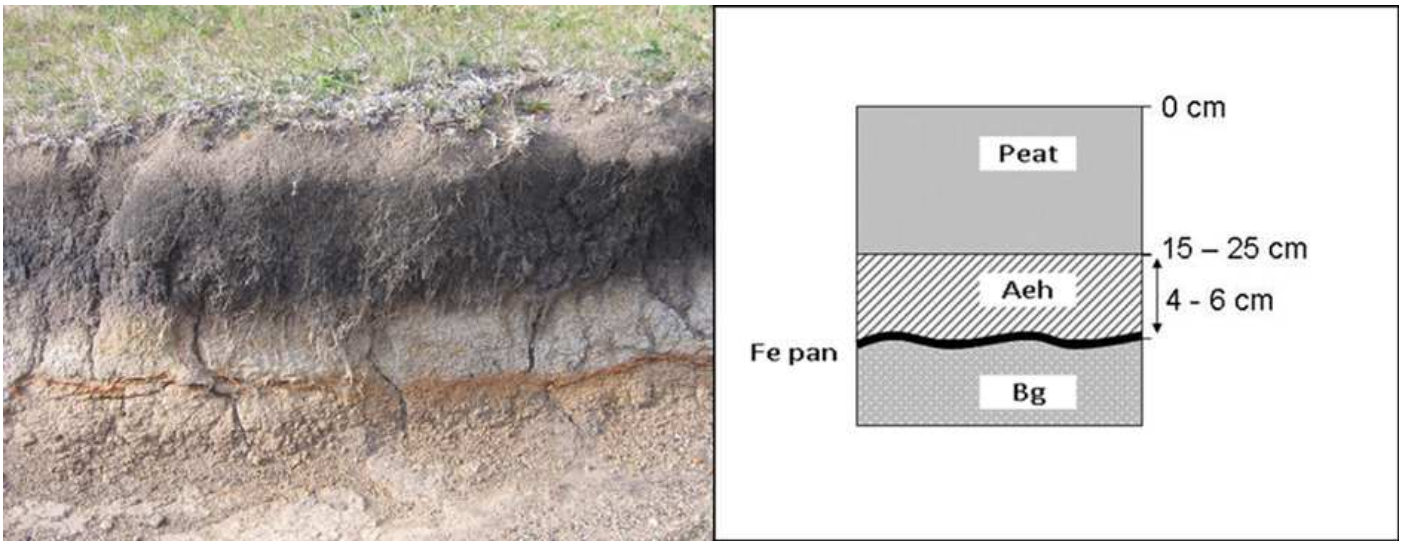
implications for successful crop and pasture establishment. The development of different plant establishment techniques like early deeper sowing / moisture seeking, dry sowing or late time of sowing may be needed.

The implications of the results from this research highlighted the need for a soil type, fertility and depth distribution map. This provides a more accurate assessment of the soil carbon stocks to plan land use strategies which will help ameliorate the risk from climate change and promote sustainable use of the peatlands. The DarwinPLUS-funded soil mapping project currently nearing completion is particularly targeted at farmers and will be a great asset in helping them to sustainably manage the islands' most valuable environmental asset and resource for agricultural production. One of the outcomes of the current soil mapping project is that we will have a better idea of the distribution of peat and mineral soils in the Falklands. We have not completed the analysis yet, but it is more likely that peat soils cover just under a half of the Falklands land area.

The Soil Profile

An understanding of the soil profile is critical to how we make use of our soils. The commonly found soil profile of the Falkland lowlands (see photo) has 30-35cm surface peaty horizon, overlying a thin bleached horizon (5-10cm), possibly an iron pan (up to 1-2 cm thick), and all overlying the silty clay, poorly drained, mineral subsoil. Ideally, such a soil should be deep ploughed to break up the iron pan and mix the upper part of the subsoil with the surface peat, but such mixing may bring up subsoil with levels of Aluminium likely to be toxic to sown plants. In poor re-seeds this may be a risk worth taking if shallow soil with a low water holding capacity and restricted rooting depth is already constraining production. Applications of lime and phosphate mixes (e.g. calcified seaweed, rock phosphate) are necessary to raise nutrient levels and to lower acidity. In a future article we will look at the results of some of the many trials carried out over the years in the Falklands on liming and phosphate application.



Typical soil profile with a well - developed Iron Pan

Peat = A surface organic horizon, variable depth between 15 – 25 cm.
Aeh = A leached and bleached horizon, variable strength and with some humus staining.
Fe pan = An iron pan variable in degree of development. From continuous to a fragmented and discontinuous form.
Bg = Horizon well-weathered, clay-rich (may contain up to 60%).
Adapted from Cruickshank (2001)

Surveying and Mapping the Soils of the Falklands

Soil survey is not an end in itself. It is an inventory, a stock taking of the soil store. Soil survey becomes useful when it is applied to a specific use of soil, soil improvement for agriculture in the Falklands case. The soil mapping project aims to create a national soil map of the Falkland Islands (which will be made available online through a webGIS but also offline to each landowner in the form of PDF maps. These maps will make data such as soil type, chemical properties, pH and bulk density available at farm level at a resolution of 30 m which can then be utilised by farmers as well as agricultural advisors, conservation and research organisations for improved land management. In order to address challenges faced through climate change, the project also aims to establish a baseline for estimation of peat extent, carbon stock and erosion.

The current soil mapping project will throw up a huge range of possibilities for identifying areas best suited to different farming activities and management practices that can sustainably increase land and livestock productivity.

To come…..

In this article we have looked at the origins of Falklands soils, the types of soils we have, the important asset our soils are for climate change resilience, where the key problems are in soil fertility and using our soils to improve pasture production and nutritional quality. These are all topics we will cover again in future articles in this series. Throughout, we will be referring to results from past trials in the Falklands (and elsewhere) on acid soils and demonstrate the value of the soil mapping database.

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RECIPES

From Mandy Ford

Salt Beef

36 Litres Water
4 egg cups of salt petre
16 lb salt, (7.25kg)
Handful pickling spice
4 lb sugar can be added but if the beef is very fat it can make the fat go slimey.

Combine everything together with hot water to dissolve and when cold add meat, but all meat needs to be under the water. Keep cold and pickle for 21 days.

To cook. Boil for about 4 hours until tender, half way through change the water for fresh and add a cup of sugar.

Potted Tongue

1 x beef tongue

Boil in salted water until tender and skin comes off easy.

Mince while still warm and add onions, salt, pepper and any seasoning you prefer, then press until set enough to slice.
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SOIL-ACIDITY AND ALUMINIUM TOXICITY

By Sergio Radic, Matt McNee & Jim McAdam

This article is part of a series on soils of the Falkland Islands, written to help explain and draw attention to the significance of some of our findings from the current Soils Mapping project (Darwin Plus 083).

Soil acidity

As anyone with a connection to agriculture in the Falklands knows, the soils here are almost uniformly acidic. Acid soils are found in many parts of world, particularly where either cool or damp conditions cause Hydrogen ions to accumulate in the soil solution. Soil acidity (or pH) is measured on a scale from 1-14 where pH7 is neutral. Acid soils have pH below 7. Most soils in the Falklands are in the pH range 3.5-5.5. The optimum range for good grassland growth in a more temperate climate is about 6.5 but soil fertility is also temperature dependent and a pH of 5.5 would be considered good for plant growth in the Falklands. pH is a soil attribute mapped in one of the "layers" of your soil map.

Soil acidity and Aluminium toxicity

One of the unfortunate consequences of an acid soil is that they have high concentrations of Aluminium (measured both as exchangeable and available). Aluminium (Al) is an extremely common element in rocks generally and in the Falklands specifically. Levels of Al were measured in the samples of Falkland soils as part of the project and these appear as a further layer. High levels of Al in soils decrease availability of phosphate to plants, so we tend to refer to such soils as having Al toxicity. Al toxicity is an important restrictive factor to plant growing on all acid soils below pH 5.0, but can happen in pH above 5.0 depending on the species. Plants affected by Al toxicity grow poorly and show symptoms such as short, thick, stubby, roots which increase the susceptibility to drought and decrease the efficiency of uptake of other important soil nutrient for the plants.

Sometimes soils with different pH levels have the same exchangeable Al, therefore, some forage species can grow equally well in all soils. For example, the pH requirement of white clover is different in mineral soil (above 6.0) than in peaty organic soil (above 5.5). This is because the organic matter (OM) in the soil binds the Al in an un-exchangeable form, and this OM-Al interaction helps account for better plant growth at low pH values on soils high in OM. Of course, the application of any material which might increase the pH such as calcified seaweed (CS), will generally improve grass and forage crop production.

Sergio (under Jim's supervision) carried out some research on the effect of CS on some of the properties of the peaty and acid soils in the Falklands (namely pH, calcium and Al) as part his degree studies some years ago.

He carried out a controlled environment experiment in the lab, where he used seven different organic soils from farms on the Falklands: Saladero (Sal), Bold Cove (BC1 and BC2), Shallow Harbour (SH), Port Howard (PH), Fitzroy (FR) and Estancia (E) with organic matter (OM) of

197.5, 213.9, 189.3, 443.7, 476.5, 575.0 and 681.7 g OM kg^{-1} respectively. Each of these soils was incubated with an application of each of three different rates of CS (1.6; 3.2 and 6.4 g CS kg^{-1} dry soil equivalent to 1250; 2500 and 5000 kg ha^{-1}) and an untreated control. CS samples were randomly taken from a quarry and sieved to a particle size of <0.25 mm and the incubations ran for 4 days at 60°C.

There was a negative correlation between pH and exchangeable Al for all soil samples (figure 1A); in other words Al toxicity decreases with increasing pH i.e. less acidity but there was quite a range of response in the results. Expressing the results to show the different soil OMs (ie by farm) gave a clearer picture as to what was happening.

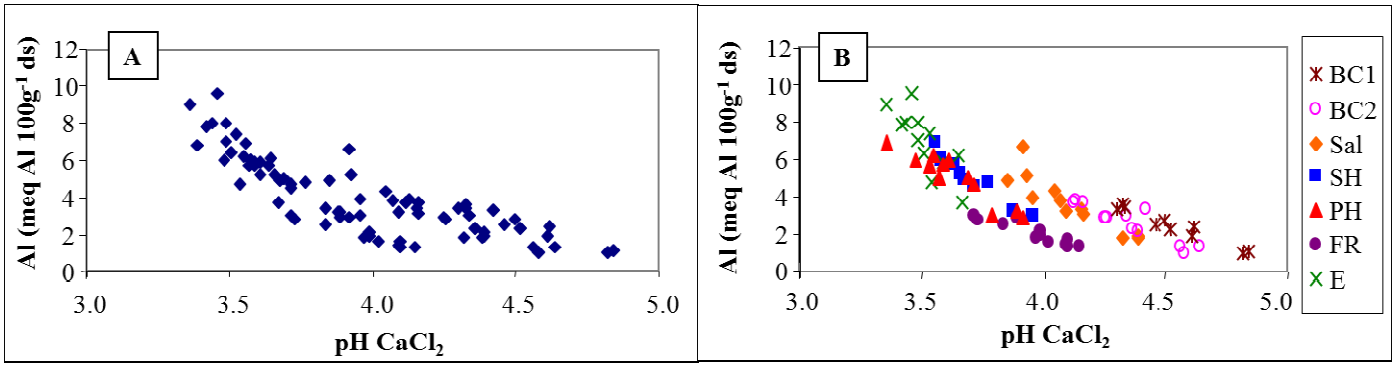

Figure 1. *Trend between pHCa and exchangeable aluminium for all soil samples (figure A); and for soil type from different farms (figure B).*

Increasing level of CS application significantly decreased the level of exchangeable Al in the soils dependent on soil type (figure 1B). This indicates that some Falklands soils are more suitable for improvement with Al sensitive species, such as legumes, than others and this will affect the recommended rate of CS application, and hence the cost. The variability found between sites could be due to the variability in the soil OM content from each farm, as the OM is related to soil Al concentration. In addition, for the same pH, exchangeable Al levels can change due to soil OM content. A soil with higher OM had lower exchangeable Al than a soil with lower OM at the same pH, as shown in figure 1B, where BC1, BC2 and Sal have OM < 220 g kg^{-1} and SH, PH, FR and E have OM > 440 g kg^{-1}). Hence, in planning any future soil amelioration and legume reseeding programmes in the FI, individual site characteristics must be taken into consideration if using calcified seaweed. Note that the recommended rate of application will depend on what crop is to be grown and the organic matter content of the soil. Overlaying the farm maps should help decide what areas might be best suited for introducing forages, maximising the efficiency of use of applied nutrients and reducing the cost.

We gratefully acknowledge the hospitality and support of the farming community in the Falklands throughout the soil mapping project, which was led by South Atlantic Environmental Research Institute (SAERI) in collaboration with the Department of Agriculture, James Hutton Institute, UK Falkland Island Trust, UK Centre for Ecology and Hydrology (UK CEH), University of Magallanes and the Natural History Museum. The project is funded by the Darwin Initiative through UK Government funding. We would also like to acknowledge Roberto Jara for his commitment to the project and work in the islands away from family. Sergio and Roberto particularly recall the sunny, happy days when their sampling program had them based at Trout Court, self catering at Port Sussex.

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Darwin Plus: Overseas Territories Environment and Climate Fund

By Dani Baigorri, Biosecurity Officer

Biological invasions continue to increase globally, resulting in huge negative impacts on native biodiversity and agriculture, and sometimes threats to public health. This is mainly driven through increased human traffic and trade, but also through climate change. Once an invasive species becomes established, eradication is often not possible and continuous control efforts are costly. Therefore, solid prevention procedures are essential to minimise the risk of invasions and at the core of such procedures are Pest Risk Assessments (PRA) and Horizon Scanning (HS).

With this in mind and the gaps in biosecurity capacity, particularly with regards to prevention across the majority of the United Kingdom Overseas Territories (UKOTs), an urgent need to address this lack of capacity to undertake PRAs was agreed. Furthermore, it was suggested that this could be addressed by a Darwin funded project, initially focusing on St Helena and the Falkland Islands as case studies.

In April 2018, the two year project titled “Improving Biosecurity in the South Atlantic United Kingdom Overseas territories (SAUKOTs) through Pest Risk Assessments” was granted to the Centre for Agricultural and Bioscience International (CABI). This project primarily aimed to improve biosecurity in the SAUKOTs, by developing Pest Risk Assessment (PRA) procedures tailored to the needs of individual territories and by building capacity to use these. At the same time, CABI developed a new horizon scanning tool and an online PRA tool as part of the open access Invasive Species Compendium (ISC).

To address the problem outlined, the project was split into four Work Packages (WP):

WP 1: Identifying the specific needs of individual OTs

WP 2: Test and implement a horizon scanning tool for invasive species

WP 3: Develop tailored PRA procedures for individual territories

WP 4: Create a biosecurity network for all SAUKOTs to share knowledge about species of concern, alerts, etc.

The four WPs were covered by desk-based activities and two workshops over the course of the project held on St Helena (March and December 2019). At these workshops, biosecurity staff from both territories plus stakeholders were trained to conduct PRA testing, whilst using and improving the templates developed in the first year of the project.

The main outcome of this project is the improved Biosecurity on several SAUKOTs through the implementation of better PRA procedures.

The newly developed PRA templates, in combination with updated PRA procedures, have been implemented on both St Helena and the Falkland Islands. In addition, with both CABI online tools (HS and PRA tool) now readily accessible have already mitigated the risk of introducing invasive species.

The success and achievements of this project will carry on over the years and will be indicated through the increase of rejections of high-risk species and higher acceptance of the import of low risk species and; increased interception of some high-risk species due to raised alert after horizon scanning. In all SAUKOTs, this is particularly relevant in connection with increased traffic and tourism. Especially for Overseas Territories (OTs) with a more temperate or sub-Antarctic climate these risks are expected to become greater with climate change. Climate change is likely to allow the establishment of species in areas currently too cold for their long-term survival. Staff training and the availability of new (online) tools contribute to address these increased risks.

An additional outcome of the project was the establishment of a close cooperation between the biosecurity teams of the SAUKOTs to facilitate the exchange of knowledge and skills between them.

The project increased biosecurity awareness and succeeded in justifying the importance of prevention, to lower the impact of invasive species on biodiversity and livelihoods in the British OTs.

AGRICULTURAL RETURNS

Agricultural Returns for 2019/2020 are due soon!

Part A: It is a legal requirement to complete and return these to the Department of Agriculture by the 30th June 2020.

Part B: It is a legal requirement to complete and return these to the Department of Agriculture by the 31st October 2020.

Contact details are:
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Environmental Studies Budget

By Denise Blake

FIG's Environmental Studies Budget (ESB) is about to open for funding. The ESB provides financial help for projects which enhance our natural environment. This year's focus doesn't only include research projects but most importantly on-the-ground action and educational activities. Farmers and landowners are perfectly placed to undertake such work.

Projects can include a range of different things, including restoring eroded areas, clearing away invasive species and setting aside land for nature. Projects can even help you meet sustainable wool standards. Whilst putting together a project plan can seem daunting, don't worry, we are here to help. If you have an idea or would like some inspiration, please contact us.

There are a number of great success stories from the ESB from previous years to take inspiration from. For example, Lewis Clifton's successful bid to fence off Loop Head and Swan Point on Weddell Island has showed successful results so far. Tussac that was depredated has recovered and halted erosion. Tackling invasive species is also a priority for the ESB. Long-term work on controlling spear thistles on Saunders Island was also funded by the ESB. Drawing on collaboration from the landowners, Island LandCare and Falklands Conservation have reduced the amount of spear thistles in 500 ha from 200 m^2 down to just 50 m^2 – well done!
If this has inspired you or you would like to discuss a potential project please get in touch with the FIG Environment Unit on 28427 or environmental.officer@sec.gov.fk.

Photos: courtesy of Lewis Clifton – Tussac Recovery on Weddell Island