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Purchasing Stock: Reducing Disease Risks

Information leaflet for farmers, advisors and vets in Northern Ireland



THIS GUIDE IS PART OF A SERIES OF LEAFLETS ON VARIOUS ASPECTS OF BIOSECURITY

1. Understanding Infectious Diseases
2. Bioexclusion: Keeping Infectious Diseases Out of Your Herd
3. Purchasing Stock: Reducing Disease Risks
4. Preventing Disease Spread within Your Farm – Biocontainment

Purchased cattle are high risk

The information in this leaflet can be used to assist in formulating a Bioexclusion Plan for your farm. Each farm should have its own risk assessment which is then used to develop its own action plan.

Keeping a closed herd by never buying in, borrowing or renting any outside cattle is one of the best ways to keep diseases out of your farm and is strongly recommended.

However, there are times when, as part of herd management, it is not possible to keep a closed herd. Bringing cattle into a herd carries a high risk of introducing infectious disease. This document outlines practical options to help reduce the risk of introducing diseases to your herd. Even when all of the following steps are taken, the risk of bringing in disease cannot be eliminated entirely.

Purchasing cattle will remain one of the most likely ways that you will introduce disease into your farm.

This leaflet refers primarily to purchasing of cattle within Northern Ireland. If considering purchasing cattle from other countries, you must liaise with your DVO about specific importation requirements. Cattle must always be purchased within the TB testing rules and regulations. Herd registers must be kept up to date.

Commonly forgotten risks

Pregnant Cattle: In this document 'purchased cattle' refers to animals that are not born in your own herd, but are introduced after birth. When a pregnant animal is purchased, the unborn calf should also be considered to be a 'purchased animal'.

Returning animals: Animals that are home-bred but that leave and return (e.g. a bull on loan, animals coming back from an out-farm, a heifer rearing unit, an agricultural show or a mart, returning animals from contract-rearing farms) may also pose a risk of introducing disease to your herd. Steps 5 and 6 below may also be relevant to these 'returning animals' depending on individual circumstances.

BIOEXCLUSION PLAN

Take steps to reduce risk

There is a high risk of buying in animals that are carrying diseases when purchasing animals, and thus it is worth having a specific Bioexclusion Plan before any purchase is made. Figure 1 illustrates the seven steps to follow in order to prepare an appropriate and practical Bioexclusion plan.

Bioexclusion Plan

STEP 1	PLAN AHEAD
STEP 2	Buy in as few <u>ANIMALS</u> as possible
STEP 3	Buy from as few <u>HERDS</u> as possible
STEP 4	Select <u>LOWER RISK HERDS</u>
STEP 5	Select <u>LOWER RISK ANIMALS</u>
STEP 6	Reduce <u>TRANSPORT</u> risks
STEP 7	Implement a <u>QUARANTINE</u> period

Figure 1: Seven Step Bioexclusion Plan

Bioexclusion Plan

STEP 1

PLAN AHEAD

Due to the high risk associated with purchasing animals, it is worth spending time preparing a specific plan before any purchase is made. You can then use the steps below to decide on what animals you're going to buy and what steps you're going to take to reduce the risk of disease entering your herd. If buying in animals, plan to do so as few times as possible through the year, and be aware of how the management of your home-bred animals will be affected by the management of the bought-in animals. It is a good idea to involve your own veterinary practitioner in the purchasing policy of your herd.

Buying animals in at the 'right price' may not be 'worth it' if the animals bring in disease

Never buy without planning purchases carefully with the biosecurity of your herd in mind.

Bioexclusion Plan

STEP 2

Buy in as few ANIMALS as possible

Each additional animal that is brought into a farm increases the chances that you will also introduce an infectious disease.

The first question to address is why you are buying cattle at all. Is it essential that you buy cattle in order to achieve your business goals? Structured expansion through increasing the number of replacements bred and kept from your own cattle may remove the need to introduce cattle and the associated risk. If your goals can only be achieved through strategic purchase then spend time deciding how you can minimise the number of purchased animals needed.

Only buy the number of animals that you need. Make a purchase plan and stick to it.

The fewer animals you buy in, the lower your risk of buying disease in with them.

Bioexclusion Plan

STEP 3

Buy from as few HERDS as possible

Each additional herd that you buy animals from increases the chances that one of these herds has an infectious agent that may spread to your own cattle.

This might be an infectious agent that your herd has been completely free of (e.g. buying in an animal that is persistently infected with BVD virus). However, it may also be an infectious agent that you already have, but of a strain sufficiently different from that to which your cattle have previously been exposed as to represent a disease risk for your herd. Build a relationship with the farmers you are purchasing from so that you will get to know their herd health status.

When you buy in an animal you run the risk of introducing infectious disease from the vendor's herd

The fewer herds you buy from, the lower your risk of buying disease in from them.

Buy directly from a single herd whenever possible.

Bioexclusion Plan

STEP 4

Select **LOWER RISK HERDS**

Carefully selecting the herd that you buy animals from is as important as selecting which animals you buy. Herd selection is particularly important for diseases where the tests have poor sensitivity and the animals cannot be treated for the disease, e.g. Johne's disease.

Farmers select animals they purchase based on age, weight, breed, breeding indices, sex, etc. Good biosecurity practice is to now incorporate information on the disease risk status of both the vendor and purchaser (both of the herd and of the individual animal) into the animal selection process. When choosing a herd to buy from select herds with the lowest risk of having disease (Table 1) and, if possible, **only purchase from herds of equal or higher health status**. Purchasing from clear or low disease incidence regions (not just herds) should also be encouraged.

Higher Risk	<ul style="list-style-type: none"> Herds that are open and have no testing or vaccination and treatment records Herds that have imported animals Herds with high levels of mortality and disease
Moderate Risk	<ul style="list-style-type: none"> Herds that are closed for several years but the herd owner has no disease testing records Herds that are open but for which the herd owner is prepared to show vaccination and health status (including clinical disease and all laboratory test results) and treatment records
Lower Risk	<ul style="list-style-type: none"> Herds that are closed and accredited free of certain diseases Herds that have been closed for several years and for which the herd owner is prepared to show disease test records, vaccination history, treatment records, and herd register.

Table 1: Assess the disease risk of herds you are considering purchasing from

A closed herd is one that does not introduce any animals in from outside - not even bulls.

A checklist of questions for the vendor

- When did you last introduce any cattle into your herd?
- What type of cattle did you buy? And how many?
- Do you buy breeding bulls?
- On what dates were these cattle last vaccinated for various diseases, and did they receive the complete vaccination course?
- What recent herd and animal disease problems and test results do you have for your herd?
- Do you have a history of Johne's disease?

It may be appropriate to ask your local veterinary practitioner to contact the vendor's veterinary practitioner and discuss these questions on your behalf with the vendor's consent.

Don't buy blind! Actively look for herds that have the lowest risk of infectious disease.

Bioexclusion Plan

STEP 5

Select **LOWER RISK ANIMALS**

Not all animals come with the same risk of carrying an infectious disease into your herd, and tests do not always identify high risk animals. The risk of animals carrying disease should be considered when deciding whether animals for sale are appropriate for your herd.

Animals that pose a lower risk to your herds are:

- Animals sold through '**high health sales**' with certified negative test results for specific diseases.
- Animals with a declaration of negative BVD virus results.
- Animals that the vendor has **individually tested recently (with negative results)** on his own farm for specific diseases.
- Animals that the vendor has **vaccinated** and for which a full anthelmintic treatment history is available.
- Animals that have been **milk-recorded consistently** without any high somatic cell count results (cows with SCCs greater than 200,000 are very likely to have mastitis).
- Animals which are **free from obvious clinical disease** e.g. (lameness, ringworm, mastitis, teat warts etc).
- Animals which are **not pregnant**.

Ideally, the purchaser should ask the vendor to isolate the cattle from the rest of his herd and after 4 weeks in isolation screen the cattle for the major diseases. They would then purchase or reject these based on the results.

Specific risks from pregnant animals

Pregnant animals should be considered higher risk because for some diseases (e.g. BVD) the unborn foetus can be infected even when the dam is not, and the calf cannot be tested until it is born. Other infections that can be transmitted to the foetus include *Neospora*, *Salmonella*, Johne's Disease and Bluetongue.

If you decide to buy pregnant stock, they should go through normal quarantine when first introduced and then remain in quarantine until calving. The new-born calf should also undergo quarantine as outlined below.

Bioexclusion Plan

STEP 6

Reduce TRANSPORT risks

The process of moving cattle from the vendor's farm to your own carries additional risk of introducing disease. The following steps will help to minimise these risks:

- Ensure the transport vehicle is clean and disinfected **before use** (particularly if it is borrowed).
- Load cattle **away from** the other livestock on the vendor's farm.
- **Do not allow** the animals you are buying to mix with other cattle (e.g. in a transport vehicle, at a mart or at a holding station).
- Transport cattle **directly** between the vendor's farm and your own farm.
- Unload cattle directly into an **isolated quarantine area**.
- Plan a route and time to avoid **areas where cattle are congregated** e.g. marts, slaughter plants.



Ensure the transport vehicle is clean and disinfected before use

Bioexclusion Plan

STEP 7

Implement a QUARANTINE period

Quarantine is the final step to help reduce the disease risks with purchased cattle. Quarantined animals must be in complete isolation from the rest of the herd, and should not share the same airspace. The home herd should not have contact with biological waste (slurry, used bedding etc) from the quarantined animals. Separate equipment and outer clothing for staff should be used in the quarantine area.

The use of quarantine:

- Protects your herd.
- Allows you to carry out any testing, vaccinations and treatments.
- Allows you to introduce animals to your feeding regime and check any reactions.
- Allows you to check for pregnancies.
- Allows you to monitor closely the health status of the cattle including any infections that they may have contracted up to the point they arrived on your farm.



Always unload stock away from the home herd and keep them quarantined for a minimum of 4 weeks. Check animals regularly when in quarantine.

Plan the working day around visiting the quarantine area to work with these animals last thing in the evening, or allocate the work to someone who will not be in contact with other cattle. Note, milking cows are more difficult to quarantine and it is suggested that they should be kept separately and milked last until the quarantine period is over.

The length of time that the animals should stay in quarantine will depend on what medications / vaccines are given and on the results of any disease testing. It is recommended that the quarantine period is not less than 4 weeks. See Table 2 for suggested tests.

Regular examinations

When animals are in quarantine they should be inspected every day by a competent stockperson for signs of ill health.

What do I do if an animal has problems (gets sick, aborts or dies) in quarantine?

If an animal gets sick when in quarantine, a veterinary examination to diagnose the cause is recommended. If the cause is deemed to be an infectious disease that may threaten your herd, the risk from introducing the animal into your herd should be considered carefully. In many cases it will be safer not to introduce the animal to your own herd. If there is also a danger that other animals in the quarantined group have become infected then the quarantine period may have to start again. In extreme cases (e.g. a salmonella outbreak in the quarantined group) it may not be safe to introduce any of the purchased group into your own herd.

Testing for disease status

Animals can be tested for specific diseases while in quarantine before or after purchase. Discuss with your own veterinary practitioner which tests are appropriate and when they should be carried out for your herd.

Consider:

- Your own herd's infectious disease status.
- Your herd health goals.
- The intended purpose of the animals you purchase.

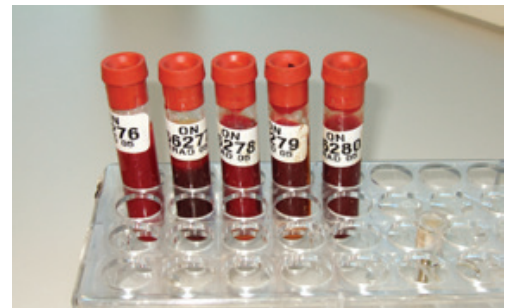
Being aware of your herd's disease status is key to deciding what tests you will need to focus on for introduced cattle (see the AHWNI Biocontainment leaflet).

If you are free of particular diseases, it would be essential to test for these to significantly reduce the risk that you are buying in animals with these diseases. Naïve herds are at a great risk to disease outbreaks if a diseased animal is introduced.

The ideal test will correctly identify carrier animals that appear normal. However, tests differ in the accuracy with which they are able to do this, and no test is perfect, irrespective of which laboratory runs the test.

Testing alone does not reduce the risk of disease introduction, it merely identifies a hazard. It's how you and your own veterinary practitioner act on the test results that will reduce the risk of disease introduction. These tests only detect individual disease causing agents but may not detect the root causes of complex disease syndromes.

Table 2 lists tests that can be used for some common infectious diseases in NI. Discuss this table with your own veterinary practitioner to decide which of these tests you should use when purchasing cattle. Note that for some infectious diseases, the reduction in risk achieved with a negative result is limited. In addition, the list is not comprehensive nor does it refer to tests which you are legally obliged to conduct (e.g. for tuberculosis). Note that when testing younger animals which may be affected by maternally derived antibodies from colostrum feeding, their test results will actually be reflective of the dams' status.



Testing animals on arrival to your herd is a good biosecurity practice

Laboratories that are accredited to carry out disease tests to an international quality standard, such as ISO/IEC 17025, should be used for testing in preference to any other laboratory.

Use the AHWNI Quarantine Plan on page 9 of this document to help plan quarantine testing.

What do I do if an animal tests positive when in quarantine?

If an animal tests positive while in quarantine then careful veterinary interpretation is required; Table 2 has some guidelines. The more infectious agents you test for in purchased animals, the more likely you are to get a positive result. Ultimately, you will need to decide whether you are prepared to risk bringing the test-positive animal (or the rest of the group that are quarantined with the test-positive animal) into your own herd. In many cases, it may be safest to decide not to introduce the test-positive animal to your herd, remove the animal and start the quarantine period again.

Vaccinations and other medications

Vaccination: Animals in quarantine should be vaccinated against the same diseases that your main herd is regularly vaccinated against. The quarantined animals should not be introduced to your own herd until two weeks after the full vaccination course(s) is / are complete.

The requirement to do this might be reduced if you are confident that the vendor has recently vaccinated the animals appropriately.

Take care that samples for any antibody tests are taken before vaccination to reduce interference by vaccination.

Medication: Treatment of incoming cattle can reduce the risk of them carrying certain infectious agents. The use of medication should be considered to reduce the risk of introducing:

- Liver fluke
- Internal parasites (e.g. worms)
- External parasites (e.g. lice and mange)
- Leptospirosis
- Digital dermatitis (mortellaro).

Guidance from your own veterinary practitioner is essential in each case to select appropriate treatments. Use the AHWNI Quarantine Plan on page 9 of this document to help plan quarantine medications in conjunction with your own veterinary practitioner.

Bio-containment during and after quarantine

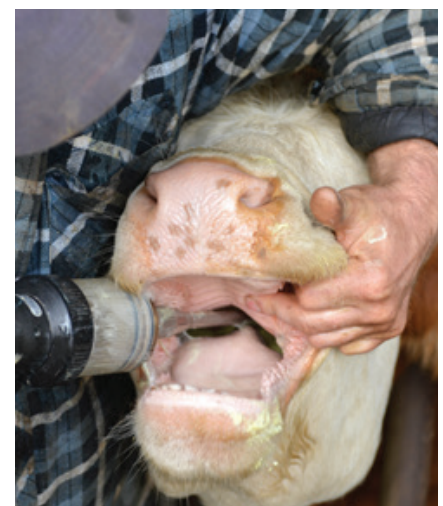
- Dip boots and use protective clothing
- Use dedicated equipment and disinfect after use
- Manage slurry to minimise any disease threats.

Testing Tables

Inconclusive results should be interpreted carefully and in discussion with your own veterinary practitioner.



Vaccination is an effective tool



Dosing on arrival should be considered

Biosecurity works both ways

As well as introduced cattle presenting a disease risk to your herd, your cattle also present a disease risk to the introduced cattle. In order to protect the introduced cattle from these disease risks a quarantine period can also be used to implement reverse biosecurity measures such as treatment, checking for pregnancies and vaccination. However, existing infectious disease problems in your herd (e.g. respiratory diseases), present a risk to the health of the introduced cattle after they are released from quarantine. Hence, knowledge of and control of infectious diseases in your own herd is as important as controlling the risk of introducing infectious disease in purchased cattle. See the AHWNI Biocontainment leaflet for further information on this.



Isolate cattle on arrival on farm and implement a quarantine period as part of your Bioexclusion plan

NOTES

Table 2: Information on testing individual animals during quarantine for common infectious diseases in NI; the list is not complete and details only the most appropriate tests for some common infectious diseases. Animals with inconclusive results should be sampled again and retested. Consult your own veterinary practitioner for more information.

Disease	Appropriate Test(s)	Days needed before taking sample (a)	Approximate days to receive results (b)	Total days required for testing (a+b)**	Positive Result	Negative Result	Confidence in a negative test result*
BVD	<ul style="list-style-type: none"> • Antigen ELISA • PCR 	0 days	5 days	5 days	The animal is transiently or persistently infected with BVD; retest in 3 weeks to determine which. Others in quarantine may become transiently infected and if pregnant the foetuses may become persistently infected.	<p>The animal is not likely to be transiently or persistently infected with BVD.</p> <p>A negative result for a pregnant animal does not exclude the possibility of a PI calf which should be tested at birth.</p>	Very Good
IBR***	For non vaccinated animals use <ul style="list-style-type: none"> • gB specific antibody ELISA 	14-21 days	7-10 days	31 days	The animal is latently infected with IBR or has been vaccinated with either conventional or marker vaccine. If introduced, the animal is at risk of carrying IBR into the herd which may reactivate and spread.	The animal is unlikely to be latently infected with IBR.	Very Good
	For vaccinated animals (or where vaccination history is unknown) <ul style="list-style-type: none"> • gE specific antibody ELISA 	21-35 days	7-10 days	45 days	The animal is latently infected with IBR (or has been given a conventional vaccine). If introduced, the animal is at risk of carrying IBR into the herd which may reactivate and spread.	The animal is unlikely to be latently infected with IBR.	Good
Johne's Disease	• Antibody ELISA	N/A	7-10 days	7-10 days	The animal has antibodies to Johne's disease and is at very high risk of carrying and shedding the causative MAP bacteria into your herd. Further information on Johne's Disease test interpretation can be found in the AHWNI 'Johne's Bulletin No. 2'.	The animal does not have detectable antibodies to Johne's disease but may still be carrying and shedding the bacteria. There is a high probability that a healthy infected carrier will test negative especially if less than 2 years of age.	Very Poor
	• Faecal culture	0 days	60 days	60 days	The animal is shedding MAP bacteria and will infect other animals if introduced.	The animal does not have detectable MAP bacteria in the faeces on the day of testing but may still be carrying and shedding the bacterium intermittently. There is a high probability that a healthy infected carrier will test negative especially if less than 2 years of age.	Very Poor
Leptospirosis	<ul style="list-style-type: none"> • Antibody ELISA • MAT 	21-28 days	7-10 days	38 days	The animal has been vaccinated against or exposed to <i>Leptospira</i> and is at risk of carrying and shedding the bacteria.	The animal does not have detectable antibodies to Leptospirosis but may still be carrying and shedding the <i>Leptospira</i> bacteria.	Moderate

Disease	Appropriate Test(s)	Days needed before taking sample (a)	Approximate days to receive results (b)	Approximate total quarantine days (a+b)**	Positive Result	Negative Result	Confidence in a negative test result*
Mastitis	• CMT	0 days	0 days	0 days	The animal is at high risk of carrying a mastitis causing bacteria into the herd.	The animal does not have a severe sub-clinical mastitis but may still carry mastitis causing bacteria eg <i>Staph aureus</i> .	Poor
	• Bacterial Culture ****	0 days	10-14 days	14 days	Pathogen specific; consult your vet.	The animal does not have detectable bacteria in milk but may still carry mastitis causing bacteria eg <i>Staph aureus</i> .	Poor
Neosporosis	• Serum Antibody ELISA	14-21 days	7-10 days	31 days	The animal is likely to be carrying <i>Neospora</i> and to pass it on to any calves that she has; she is at risk of transmitting it indirectly to other cattle via canines (dog, foxes).	The animal is not likely to be infected with <i>Neospora</i> .	Good
Salmonellosis	• SAT	14-21 days	7-10 days	31 days	The animal has been vaccinated against or exposed to <i>Salmonella</i> and is at risk of carrying and shedding the bacteria.	The animal does not have detectable antibodies to the strain of <i>Salmonella</i> tested for but may still be carrying and shedding the bacteria.	Poor
	• Faecal culture ****	2- 3 days	10-14 days	10 days	The animal is shedding <i>Salmonella</i> and will pass it to your herd if introduced.	The animal does not have detectable <i>Salmonella</i> bacteria in the faeces on the day of testing but may still be carrying and shedding the bacteria.	Poor

*This is the reduction in risk of introducing a given infection when a quarantined animal tests negative and reflects the ability of the test to accurately detect infected (diseased or carrier) animals.

**Total days to complete quarantine.

***When testing for IBR - if testing non vaccinated animals the gB is a more sensitive test.

**** Use of antibiotics may interfere with test result.

Quarantine periods are to allow sero-conversion to occur if there is an exposure on the vendor's farm or during transit (the recently infected animal needs time to produce detectable levels of antibodies); if you do not wait for this time period the total time required may be reduced, though any exposure during transit may not be detected; Animals infected with Johne's disease need several years before they sero-convert and test positive, so it is not practical to keep an animal in quarantine for a sufficient length of time

Quarantine Test and Treatment Plan

Buying in cattle carries a high risk of introducing infectious disease. Remember that quarantine is only the **last step** in reducing infectious disease risks from purchased cattle, and that the earlier steps are equally or more effective at reducing risk.

Complete the plan after discussion with your own veterinary practitioner regarding which disease tests, vaccinations and medications are appropriate for you. The quarantine end date may change if animals become sick or test positive (see above for details). This plan refers specifically to a plan for disease testing.

Group Identifier:		Quarantine Start Date:	
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DISEASE TESTS

Disease	Test selected	Days in quarantine needed before collecting sample	Date sample to be collected	Days to receipt of results (allow for weekends / holidays)	Date result is expected

DISEASE TREATMENTS (MEDICATIONS, VACCINATIONS)

Disease	Treatment selected (under veterinary guidance)	Date treatment to be given	Days in quarantine needed after treatment	Date treatment is complete

Estimated Quarantine End Date:	Four weeks or longer is always recommended for a quarantine period UNLESS longer is required based on any turn around time for testing. ____ / ____ / ____
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Continue to monitor all cattle (the purchased animals and your own herd) for signs of disease after you complete the quarantine period and mix purchased cattle with your herd.

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