

# BVD testing options

When checking the BVD status of your herd, we offer several testing options that will cover most situations. Three basic BVD tests are available:

- PCR and antigen ELISA to detect the presence of virus
- Antibody ELISA to detect immune response to infection

An array of applications exist depending on age, physiological status, sample type and infection status.

## Antigen ELISA testing:

The antigen ELISA test is suitable for testing individual animals.

- Ear notch samples can be from animals of any age.
- Serum samples can only be tested if the animals are more than 35 days old.

## BVD PCR:

This is our standard BVD PCR test and is suitable for animals of any age. PCR testing is highly sensitive and will detect transiently infected animals (TI) as well as PI animals. For young calves, we recommend testing tissue samples by PCR.

- Samples are tested in pools but you will receive individual results for each animal.
- If a positive result is obtained from a pool, we automatically test each individual sample in the pool (at no extra cost) to determine which individuals are positive.
- Both serum and ear notch samples can be tested.

## BVD PCR screen:

This cost effective serum screening test is designed for larger herds or mobs, and is suitable for animals of any age.

- Testing is only performed on pools (20+ serum samples) and you will only receive a pooled result.
- Individual testing is NOT performed on positive pools.

*Note: Confirmation testing to identify individual positive animals will only be done on request (and incurs an additional charge).*

## Bulk milk testing packages:

Awanui Veterinary offers bulk milk testing packages to make screening dairy herds for BVD efficient and simple (see details on page 4). If the previous season BVD bulk milk testing results and vaccination history are known, then this information can be used to tailor a BVD testing programme.

## In summary:

	Animal age	INDIVIDUAL TESTING			POOLED TESTING	
		PCR	Antigen ELISA	Antibody ELISA	PCR	Antibody ELISA
<b>Fetus</b>	Conception – 40 days	-	-	-	-	-
	40-120 days gestation	✓	-	-	-	-
	150 days – birth	✓	-	-	-	-
<b>Calf</b>	<35 days	✓	Ear notch only	-	✓	-
	35 days – 10 months	✓	✓	-	✓	-
<b>Adult</b>	>10 months	✓	✓	✓	✓	✓
<b>Suitable samples</b>		Body fluids, fetal fluids, ear notch, serum	Serum (>35 days) Ear notch (any age)	Serum	Serum, milk	Serum

More detail can be found in the following pages.

# BVD testing

## - calf screening (<35 days old)

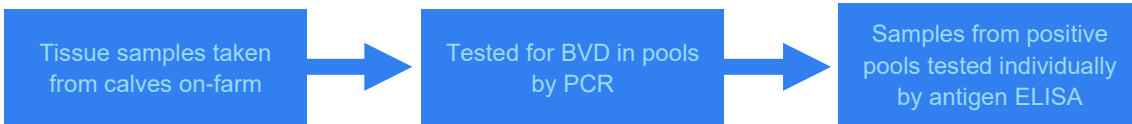
BVD testing doesn't have to be complicated.

Calf screening in dairy herds aims to identify and remove persistently infected (PI) animals before they can infect any pregnant cows. An ideal time to sample is during tagging or disbudding. Up until recently, using antigen ELISA testing in animals less than 35 days-old was not recommended due to interference from maternal antibodies and the potential for false negative results. Recent work carried out in New Zealand now indicates that antigen ELISA is a suitable test to use on ear notch samples for animals in this age group. PCR is a suitable test for serum or ear notch regardless of age.

### PCR vs antigen ELISA – which to choose?

#### Tissue samples

Tissue samples are tested in a pool by PCR, then all samples in a positive pool are individually tested by antigen ELISA. Recent work has shown that antigen ELISA testing on tissue/ear notch samples can be performed on animals of any age.



#### Serum samples

Serum antigen ELISA is still NOT a suitable test for animals less than 35 days old due to the potential for false negative results. When serum samples are tested using PCR, the sera are pooled for PCR testing and then all samples in a positive pool are individually tested using PCR.



### Benefits of PCR testing:

PCR testing is highly sensitive and will detect transiently infected animals (TI) as well as PI animals. For young calves, we recommend testing tissue samples by PCR. Gribbles Veterinary uses a combination of PCR (pooled samples) then antigen ELISA (on individuals in positive pools), which allows for differentiation of TI and PI animals in most cases.

Note: As there are no clear cut-off value between TI and PI animals, Awanui Veterinary always recommends retesting positive animals 4 weeks later to minimise the chances of culling a TI animal, regardless of whether the positive test is completed by PCR or antigen ELISA.

### Summary of testing options:

Animal age	PCR	Antigen ELISA	Result type
<b>Less than 35 days</b>	Serum or ear notch	Ear notch <b>only</b>	Individual
<b>More than 35 days</b>	Serum or ear notch	Serum or ear notch	Individual



# BVD testing

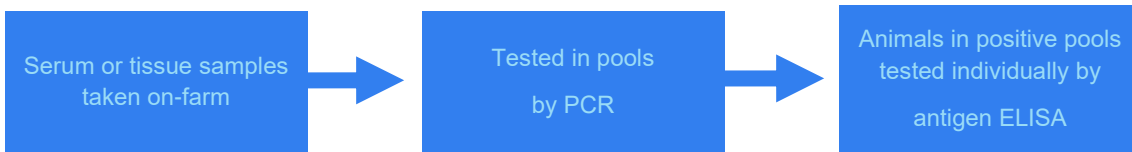
- individual testing (>35 days old)

## When there is a likely BVD incursion:

As part of a BVD control programme, individual testing of animals is required to identify persistently infected (PI) animals and remove from the herd.

### BVD PCR or antigen ELISA?

> BVD PCR is a cost effective option for testing bulk sera or tissue samples for BVD. The laboratory is able to perform an intermediate pooled screen, reducing the cost of your testing.



> PCR testing is highly sensitive and will detect transiently infected (TI) animals as well as PI animals.

Awanui Veterinary uses combination testing - PCR on pool of samples and the antigen ELISA if required to test individual animals in any positive pool. This allows for differentiation of TI and PI animals in most cases.

Test	Sample type	TAT	Result type
BVD PCR	Serum or ear notch	5-7 days	Individual
BVD antigen ELISA	Serum or ear notch	2 days	Individual

## When there is no likely BVD incursion:

### Screening healthy animals

If you require screening of animals in situations where there is unlikely to be a BVD incursion (e.g. bull screening, beef screening), Awanui Veterinary offer a cost effective option of pooled-only testing (available only on serum samples).



*\*optional follow-up antigen ELISA testing is available on individuals from positive pools available at additional cost.*

Test	Sample type	TAT	Result type
BVD PCR screen (pooled)	>30 sera	5-7 days	Pooled
BVD antigen ELISA*	Serum	2 days	Individual



# BVD testing

- herd monitoring

## Dairy herds:

Our Herd Guardian testing makes it easy to pre-schedule dairy company supplied samples for BVD PCR and antibody ELISA testing on bulk milk samples. Packages are available to suit most herd situations and an easy to use online portal can be used to order testing and view results.

### Package A:

Low risk herds

> **Sample 1 - pre-mating - Ab ELISA + PCR**

### Package B:

Moderate risk herds

> **Sample 1 - pre-mating - Ab ELISA + PCR**

> **Sample 2 - pre-mating - PCR**

### Package C:

High risk herds

> **Sample 1 - pre-mating - Ab ELISA + PCR**

> **Sample 2 - pre-mating - PCR**

> **Sample 3 - end of season - Ab ELISA**

### Package D:

Suitable for split calving herds.

> **Sample 1 - Ab ELISA + PCR**

> **Sample 2 - Ab ELISA + PCR**

## Beef herds/ young stock:

Monitoring beef herds is recommended by annual screening of unvaccinated, replacement / keeper animals 10-18 months-old for BVD antibody levels. Fifteen samples are recommended per pool. Animals need to be greater than 10 months-old at the time of sampling.

This monitoring can be supplemented as necessary with a vaccination programme, calf screening or individual animal testing if appropriate for the farm situation.

Testing options	Sample type	Indication
BVD Ab ELISA (pooled)	Serum	>10 months-old, pooled result
BVD Ab ELISA (single)	Serum	>10 months-old

