

## 5. Methods for ASF diagnosis in clinical and environmental samples

### 5.2.10 Blood-stained materials

Blood-stained material such as soil and parts of plants can be sampled for laboratory testing. About 5-10 g of material have to be sampled. Blood-stained soil can be placed in a clean plastic tube, whereas for the sampling of stained plant parts sealable plastic bags may be used (Gaur *et al.*, 2017).

## 5.3 Internationally prescribed African swine fever diagnostic tests

### 5.3.1 African swine fever virus detection tests

For agent identification, nucleic acid detection tests by real-time polymerase chain reaction (rPCR), or gel-based PCR, virus isolation and HAD assays or antigen detection tests, such as direct fluorescent antibody test (DIF) on fixed cryosections of organ material and ELISAs detecting p72 antigen, are available (OIE, 2019) (Table 5.1). Additionally, point of care tests for antigen detection are valuable tools to be used at field level, especially in situations where laboratory infrastructure and skilled personnel are limited and where in many cases first evidence of the disease is based only on clinical symptoms. Lateral flow assay (LFA) for antigen detection provides a rapid and easy way to identify ASFV infection at individual level (Sastre *et al.*, 2016a).

For screening a large number of animals Antigen ELISA is a rapid method that can be fully automated; however, its sensitivity is rather low especially because sample quality can have a

**Table 5.1.** Overview of validated African swine fever virus and antibody detection tests.

Detection	Available tests	Type: in house/commercial	Recommended use
Virus	genome detection	PCR (OIE TaqMan probe <sup>1</sup> , OIE UPL probe <sup>1</sup> or OIE conventional PCR <sup>1</sup> , and commercial kits <sup>2</sup> )	suspicion; surveillance; individual and herd testing
	virus isolation	VI/haemadsorption (HAD) test <sup>1</sup> (i.h.)	confirmation of primary outbreak
	antigen detection	Direct Immuno fluorescence (DIF) <sup>1</sup> (i.h.)	individual testing (acute forms)
		Antigen ELISA commercial kit INgezim PPA DAS, Double Ab Sandwich	surveillance; herd testing (acute forms)
	pen-side test	Lateral flow assay (LFA) commercial kit (INgezim ASF CROM Ag)	herd testing (acute forms)
	ELISA	ELISA (OIE, commercial kits <sup>3</sup> )	surveillance; herd testing
Antibody	confirmatory test	Immunoblot (IB) test <sup>1</sup> (i.h.)	confirmatory; herd testing
		Immunofluorescence Antibody (IFAT) test <sup>1</sup> (i.h.)	confirmatory; herd testing
		Indirect Immunoperoxidase test <sup>1</sup> (IPT) (i.h.)	confirmatory; herd testing
	pen-side test	LFA commercial kit INgezim PPA CROM	herd testing

<sup>1</sup> Included in the OIE Terrestrial Manual for Diagnostic Test and Vaccines, 2019; i.h. = in house methods.

<sup>2</sup> PCR Commercial Kits currently validated: INGene q PPA, INGENASA. 11.PPA.K.5TX/Q

<sup>3</sup> Antibody ELISA Commercial Kits currently validated: INgezim PPA COMPAC competition-ELISA, INGENASA