

## 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)                           |
| Antibody  | ELISA             | ELISA (OIE, commercial kits <sup>3</sup> )  | surveillance; herd testing                           |
|           | 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.STX/Q

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