



INPREST

FRENCH FACILITY
FOR RESEARCH
ON LIVESTOCK
INFECTIOUS DISEASES



Tours research centre
 37380 NOUZILLY - Phone: 02 47 42 77 00 - Fax: 02 47 42 77 77
<http://www.tours.inra.fr>
 Animal Health Division - Phone: 02 47 42 77 76
http://www.inra.fr/sante_animale
 E-mail : inprest@tours.inra.fr



INPREST

INPREST is an animal facility with an animal biosafety level 3 (A3) containment. This versatile platform is the only one of its kind in France. Originally designed for Research on Transmissible Spongiform Encephalopathies (hence INPREST, Installation Nationale Protégée pour la Recherche sur les Encéphalopathies Spongiformes Transmissibles), it is open for research on zoonotic, emerging or livestock infectious diseases. It is located in the INRA center of Nouzilly, close to the city of Tours.

This facility increases INRA's experimental capacity enabling to carry out experiments on farm or laboratory animals, from cows to mice, in order to study the pathophysiology of infectious diseases, to develop vaccine and therapeutic trials and to assess diagnostic methods.

The ten independent A3 suites allow to handle for example up to 128 sheep and 24 cows for up to 10 different pathogens simultaneously, including emerging and re-emerging diseases such as prion diseases, flu and bluetongue.

Access is open for European or Worldwide research teams from public institutions as well as private companies, on collaborative or fees for service terms. Current partners include INRA, AFSSA, CEA, CNRS, Inserm, Pasteur Institute, French and European veterinary schools and universities, and NADIR members...

INPREST is included into the Institute of Animal Infectiology Experimentation and Animal Health Centre, from INRA's Animal Health Division, which are active partners in the infectiology research network in the French "Région Centre" area. They are also member and coordinator of the European "Network for Animal Diseases/Infectiology Research Infrastructures" (NADIR).

EXPERTISE AT THE SERVICE OF BIOSAFETY

- ❖ The containment of each livestock unit is ensured by airlocks and air-control system that makes it possible to vary pressure from +20 to -120 Pascal in order to maintain a decreasing pressure between contiguous units.
- ❖ Eighteen air-control units are responsible for ensuring containment, air exchange, heating and cooling for each housing suite and working area individually.
- ❖ A prototype system distributes food from the roof through an air-tight one-way transfer system that can be decontaminated, enabling long-term housing capacities in each unit.
- ❖ A series of sealed pass-through connect the various housing suites, surgery, slaughter, and necropsy rooms, to an insider L3 laboratory that allows rapid management and early processing and analysis or storage of the samples, directly connecting the in vivo part to the research area while keeping the biosafety containment.
- ❖ The staff is issued from Inra's animal handling team that acquired expertise in A3 containment level since the 70's and transmitted its know-how and expertise through the sequential technological and regulatory improvements.

SAFE WASTE MANAGEMENT

- ❖ Decontamination of high-risk waste (class 3) by sterilisation is carried out by means of two 2.5-m³ autoclaves and one 0.5-m³ autoclave. Each large heat-sterilizer is capable of decontaminating a whole processed adult cow carcass.
- ❖ Effluent treatment is carried out by steam sterilisation at 134°C with two 1,800-litre sterilisers. The most contaminated effluents (from autopsies, for example) are chemically treated before heating. All processes are controlled by the maintenance personnel before removal. Due to the very specific design and location, INRA provides a total traceability of treatment parameters and waste disposal.
- ❖ To avoid unnecessary manipulations, we set-up a digester system in order to eliminate bodies of large animals using heated high pressure alkaline treatment.



ANIMAL WELFARE AND ETHICS

- ❖ **Maintaining animals in a satisfactory state of health and comfort was a major factor when designing the facility and equipment.**
- ❖ We use traditional contention and housing methods for the animals: natural exterior light, rubber mats, grating or duckboards for small ruminants, feed gates and exercise areas designed according to the regulatory standards of animal density per unit area. Our accommodation system encompasses long term studies, including reproductive periods, delivery and raising. Milking stations are provided for cows, sheep and goats for dairy studies.
- ❖ Trained personnel is present on a daily basis and is responsible for monitoring the animals' welfare, with a possible continuous survey through in-cell camera monitoring, and emergency procedures. Our staff is qualified on ethics and regulations as well as biosafety for livestock.

AVAILABLE SURFACES

- ❖ **Total area: 4,120 m²**
- ❖ **Effective housing area**
- area in which the animals are normally found - 1,120 m² (27% of the total area)
- ❖ **Other level 3 containment research facilities**
- surgeries, necropsy, laboratories, etc... - 600 m² (15%)
- ❖ **Service areas**
- effluent and waste treatment, air treatment - 2,000 m² (49%)
- ❖ **Other**
- circulation, offices and change rooms, etc... - 400 m² (9%)

FINANCING

- ❖ **Overall building budget was €11.2 M, tax excluded, including the cost of equipment such as autoclaves, livestock equipment, veterinary equipment, laboratory supplies, freezers, etc...**
- ❖ **This investment was supported by:**
 - ❖ Prion French Committee (GIS Prion): €4.6 M
 - ❖ INRA: €2 M
 - ❖ Council "Région Centre": €2.3 M
 - ❖ Indre-et-Loire General Council: €2.3 M