

# Connectivity needs of French dairy farms



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ICAR 2016 – Puerto Varas

# Context

- ▶ Important development of precision livestock farming
- ▶ New connectivity needs for the dairy farmers
- ▶ New possibilities and challenges for their partners

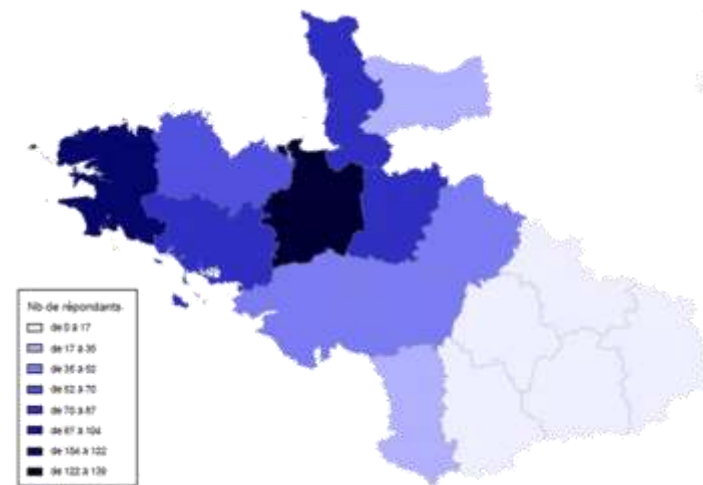


→ Goal of the study: assess the connectivity landscape of the French Dairy Farms ?



# Survey methodology

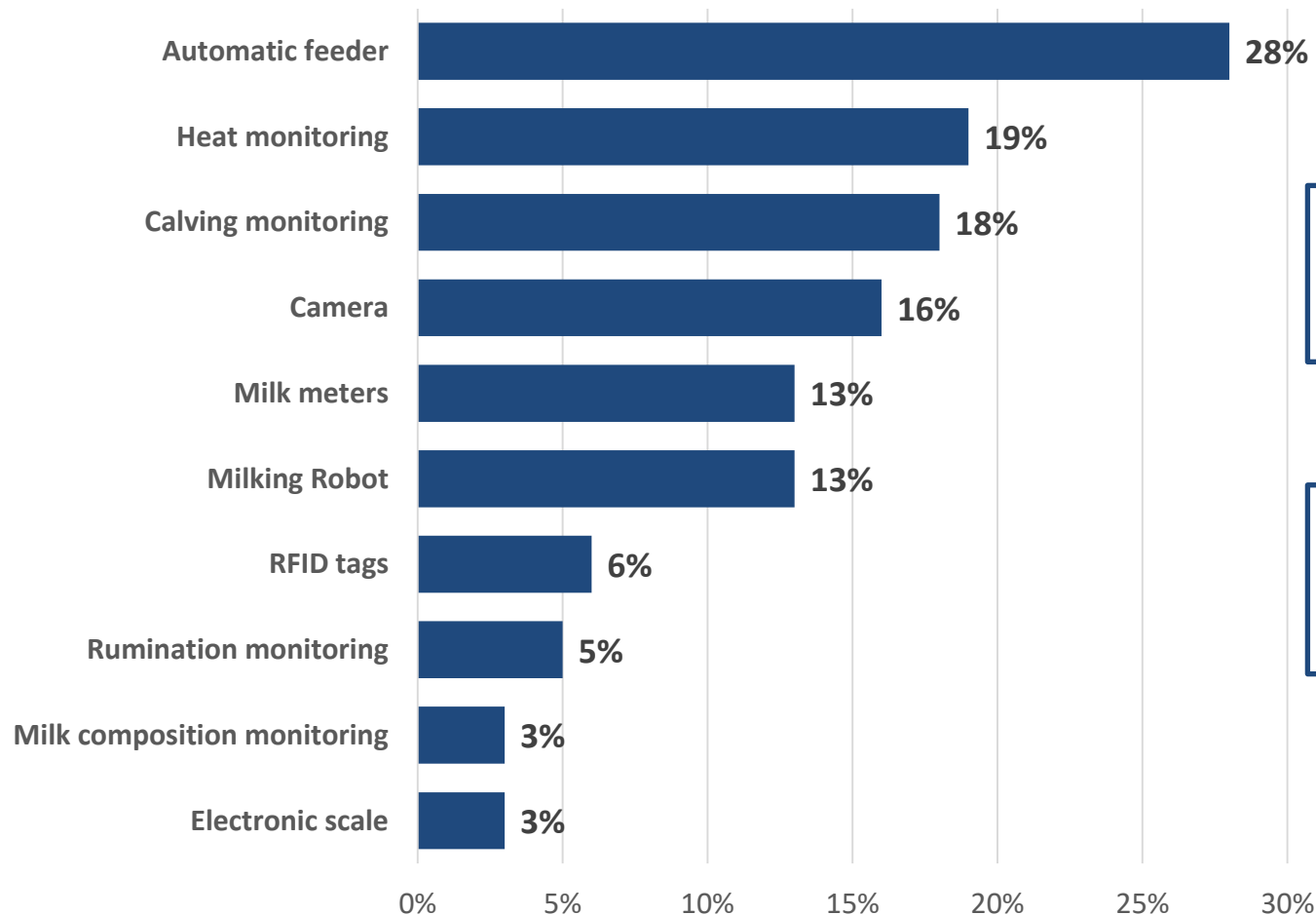
- ▶ January → March 2015
- ▶ 4000 dairy farmers contacted by e-mail – **772** answers
- ▶ **Western and center of France**
- ▶ **Survey with 53 questions :**
  - Farm and farmer characteristics
  - **Connected devices (farm + telecom)**
  - Use practices of those equipments
  - Satisfaction regarding connectivity
  - **Expectations on farm and equipment**



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# Sensors and Robots: Important penetration in Dairy farms

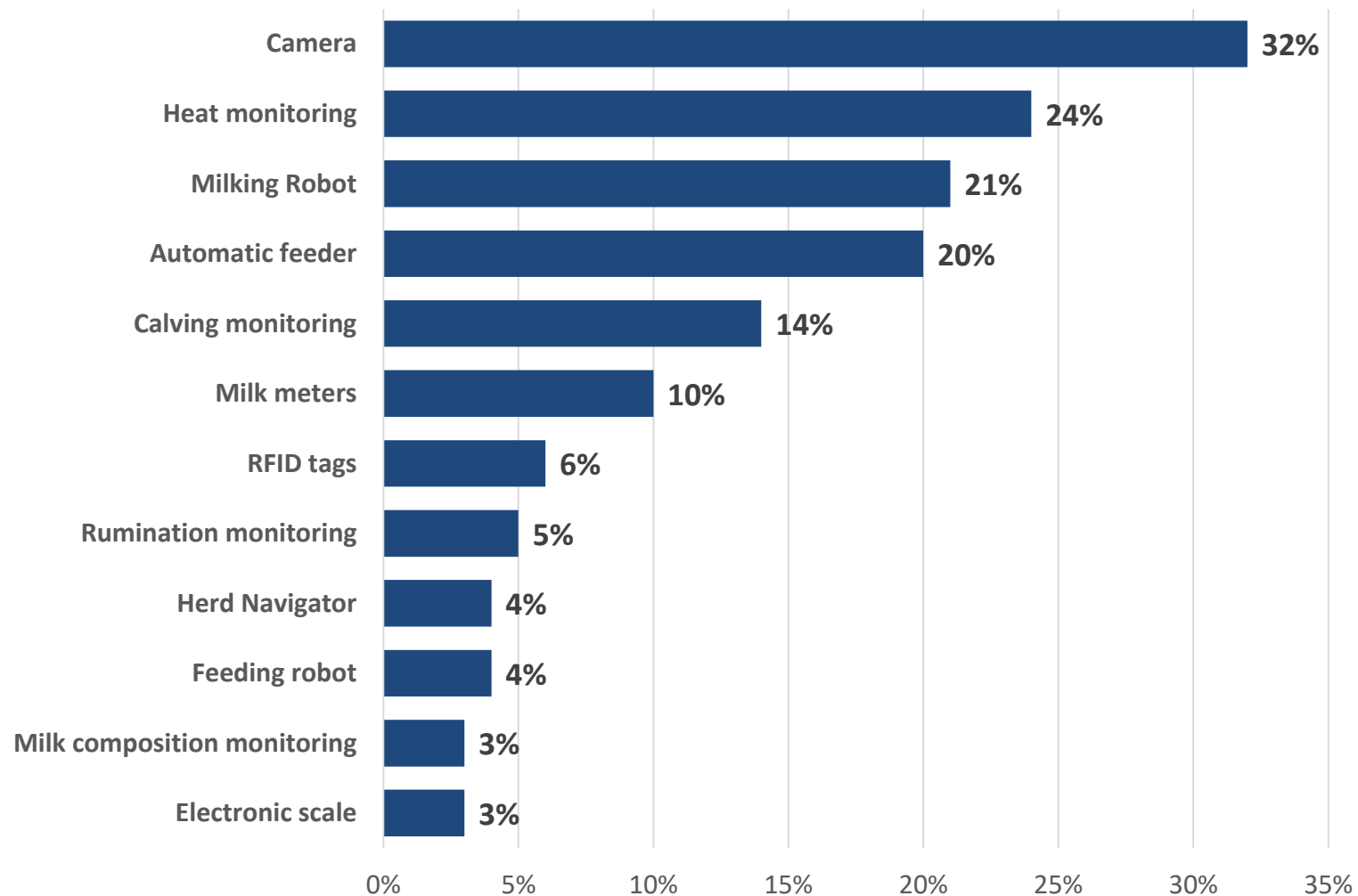


**67 %** have at least 1 connected device  
(87% in herds > 100 cows)

**38 %** of the non equipped expect to invest in a short term

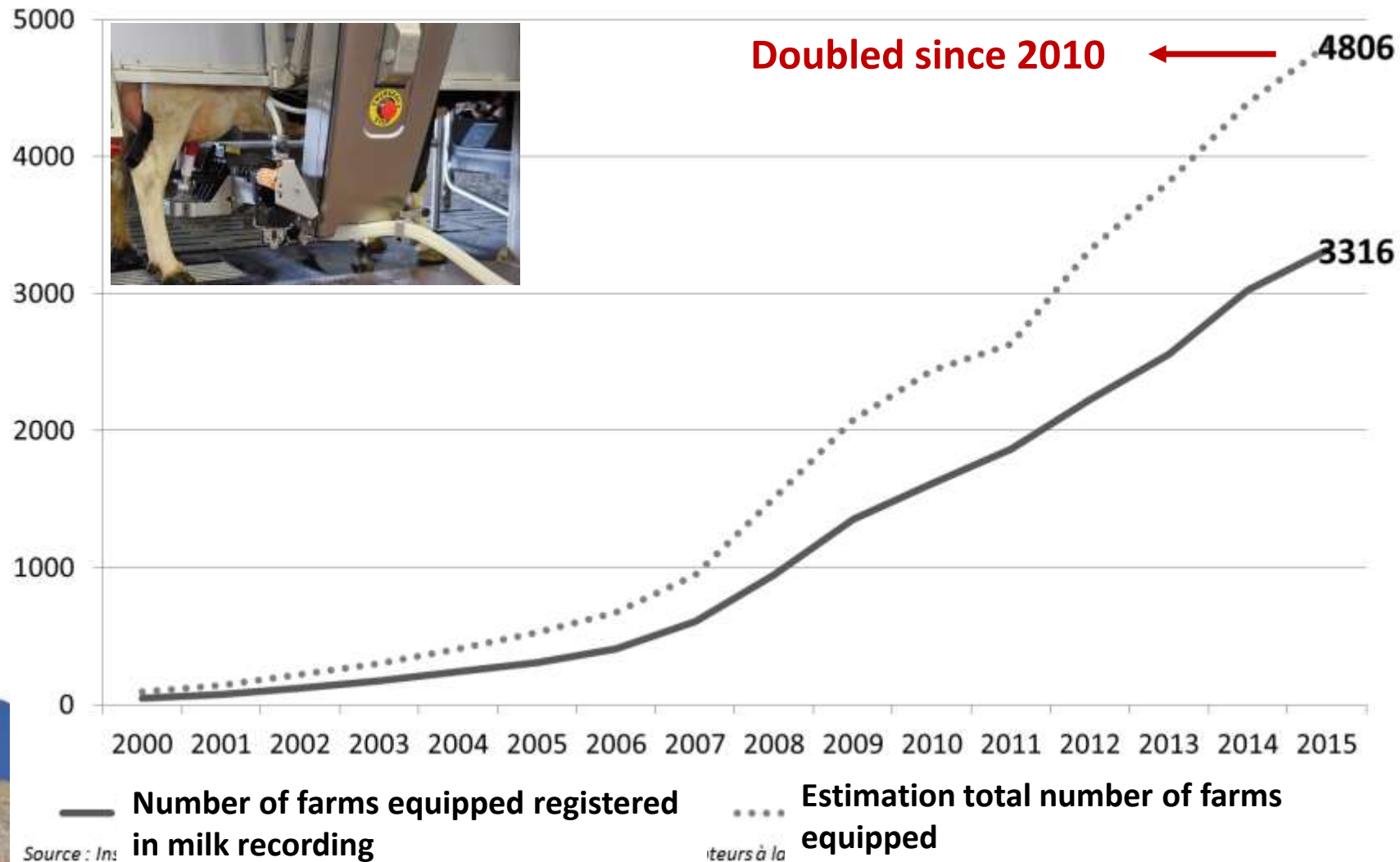


# Sensors and Robots: Short term investment perspectives

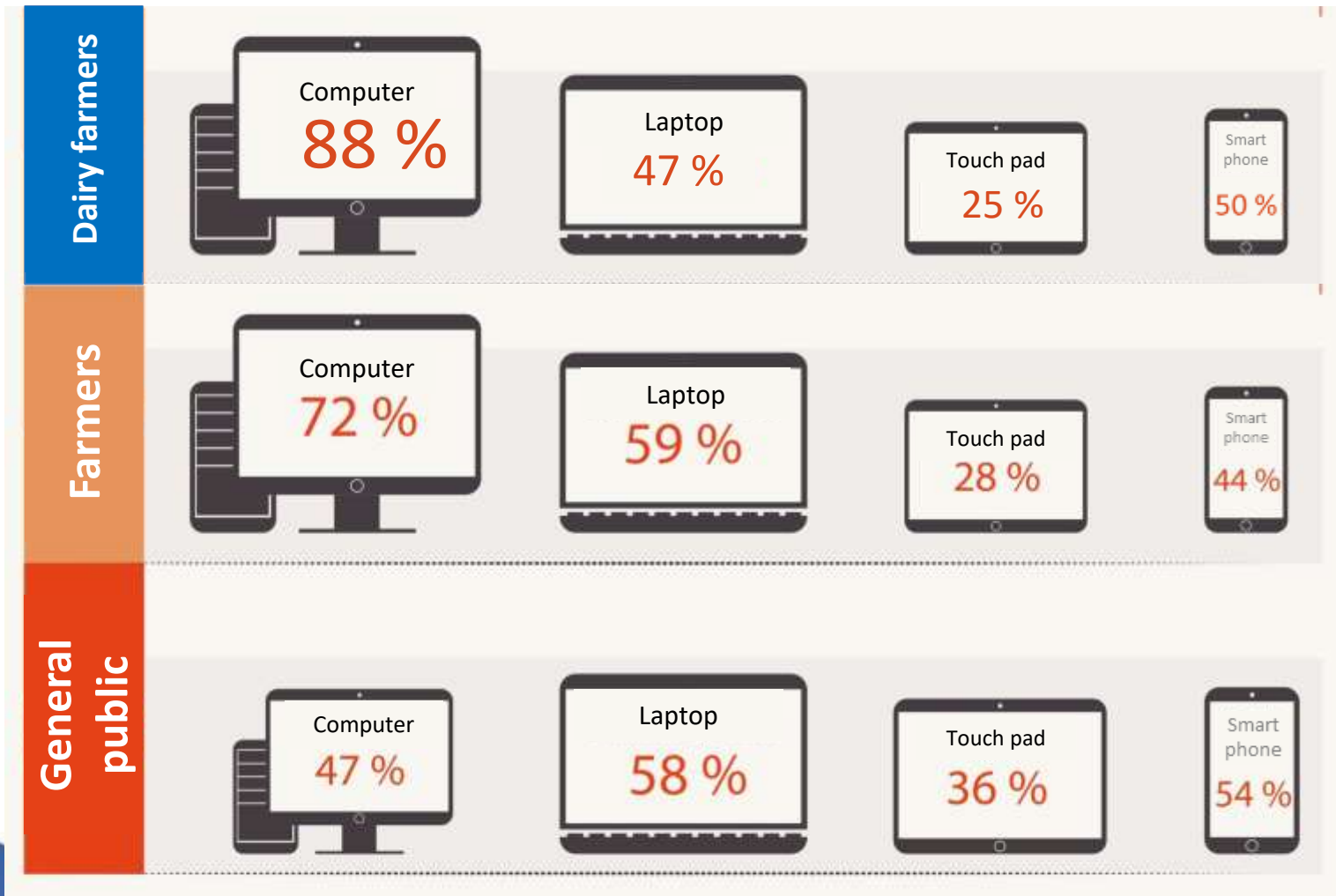




## Growth tendency: example of AMS



# Computers and mobile devices



Sources : étude agrinautes – agrisurfeurs 2015 (TICAgr/BVA) + étude Idele, Orange, Evolution 2015



# Who are the connected farmers ?

► Methodology: FMA and hierarchical clustering

► 5 different classes

## « Not concerned »

- « old » farmers (50 et +), no studies
- Small herds
- Low equipment rate with connected devices

## « Technophile demanding »

- Young farmers, studies >2 years
- Big Herds / No grazing
- Very equipped and expect to invest
- Very demanding regarding connectivity

## « Fixed internet mostly »

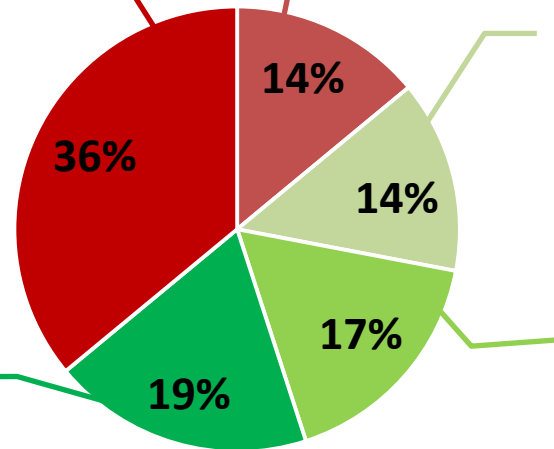
- Small grazing herds
- Low equipment rate with connected devices / Fixed internet
- No interest for mobile internet

## « Grazing and connected »

- Studies > 2 years, Small grazing herds
- Very connected with mobile devices (SP)
- Interested for new technologies in the future

## « Already equipped, cruising »

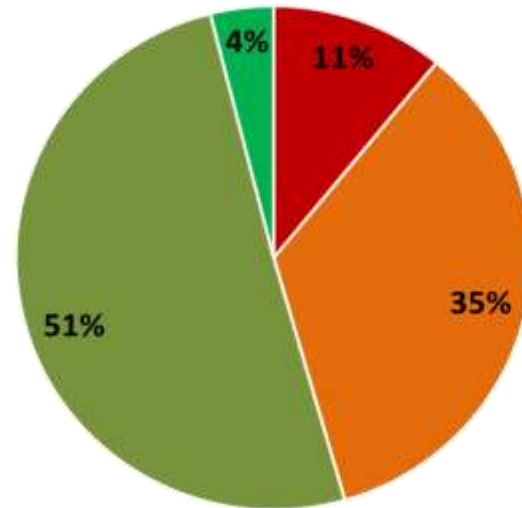
- Very equipped with connected devices
- Satisfied of their connectivity



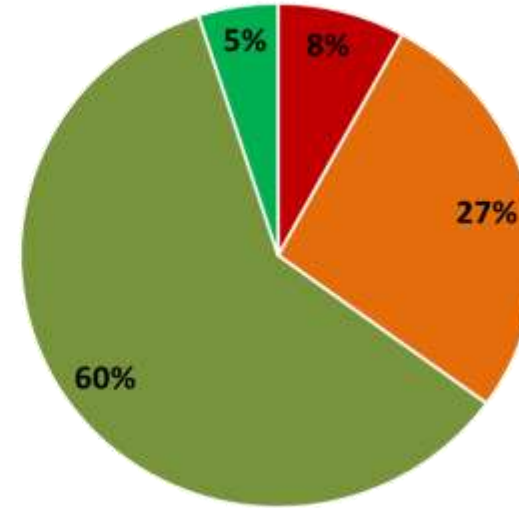


# Satisfaction with connectivity

Satisfaction mobile internet connectivity (3G/4G)



Satisfaction fixed internet connectivity



■ Very unsatisfied ■ Unsatisfied  
■ Satisfied ■ Very satisfied

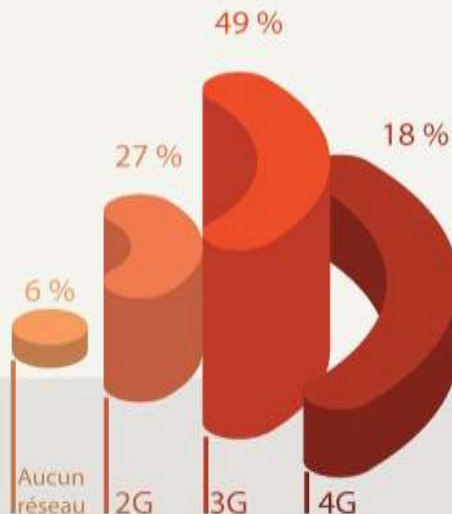
772 answers

- **35 %** of the dairy farmers are **unsatisfied** with the fixed internet network
- **46 %** are **unsatisfied** with the mobile internet network.

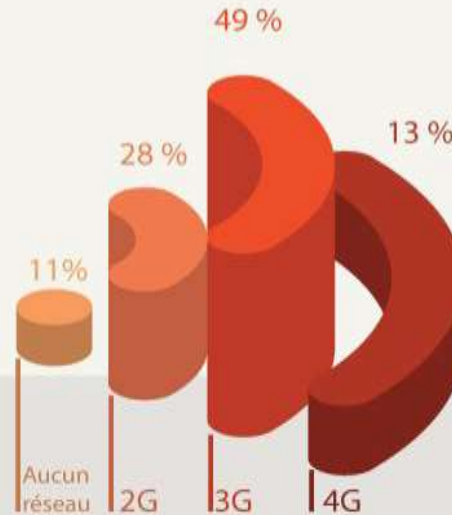


# Why are they unsatisfied ?

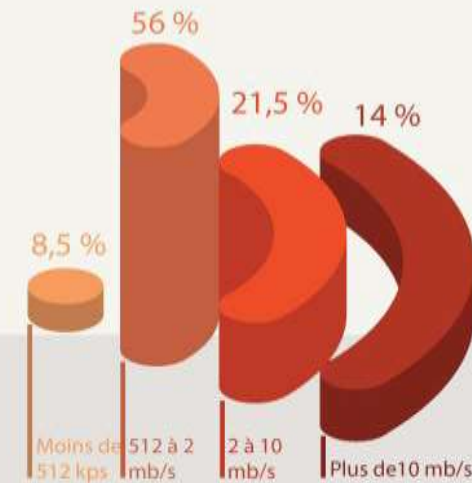
Mobile internet network  
on farm (office, barns)



Mobile internet network in  
the fields

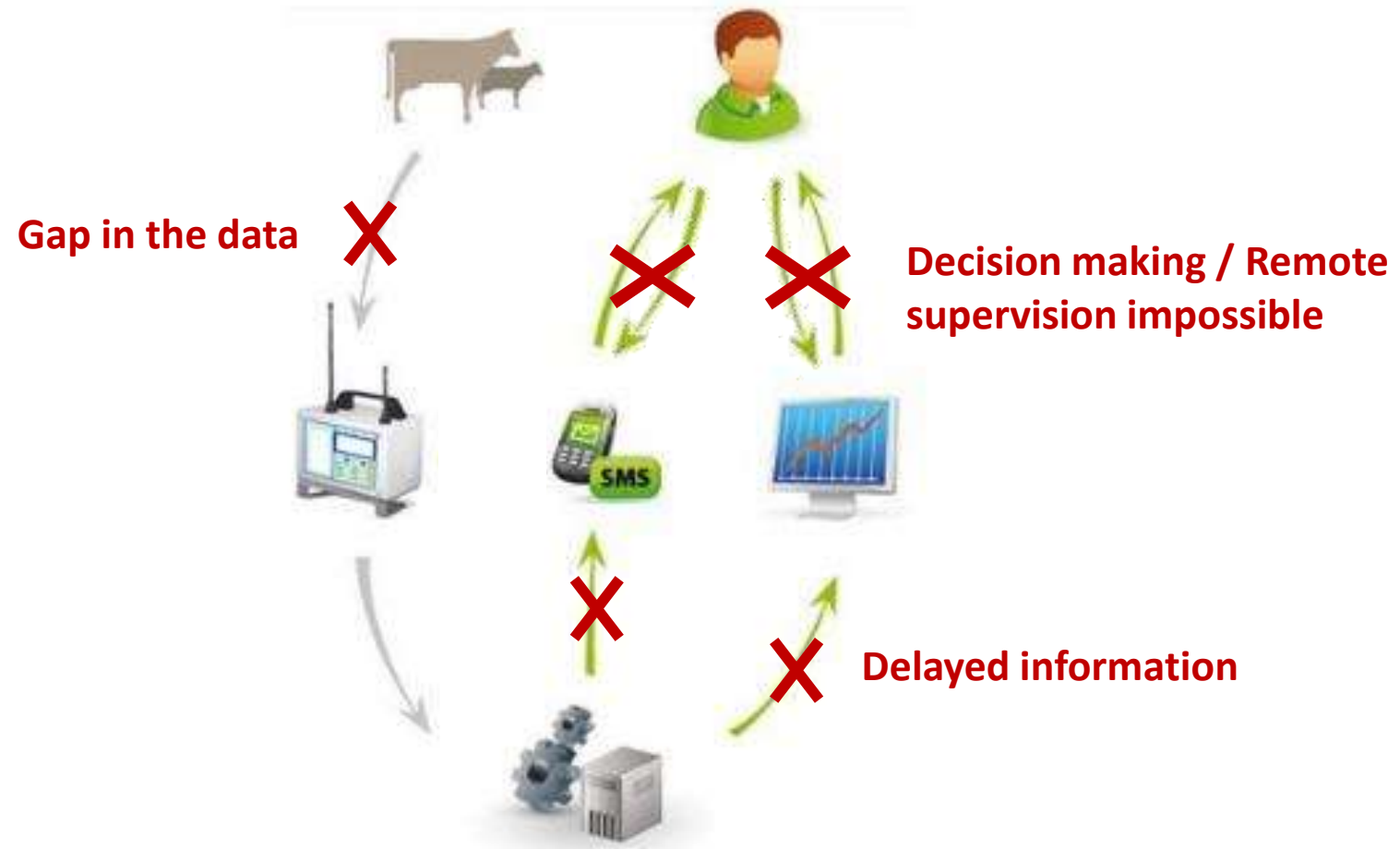


Fixed internet network on  
farm (office, barns)



Source: étude Agrinautes 2016

# Connectivity issues



# Consequences for farmers and their partners

## ► Data Exhaustivity

- Important consequences on decision making
- Unusable for advisory services and genetic evaluation ?



## ► Delayed information

- Still useful for decision making ?
- Problem for services (milk recording, advisory services, AI,...)

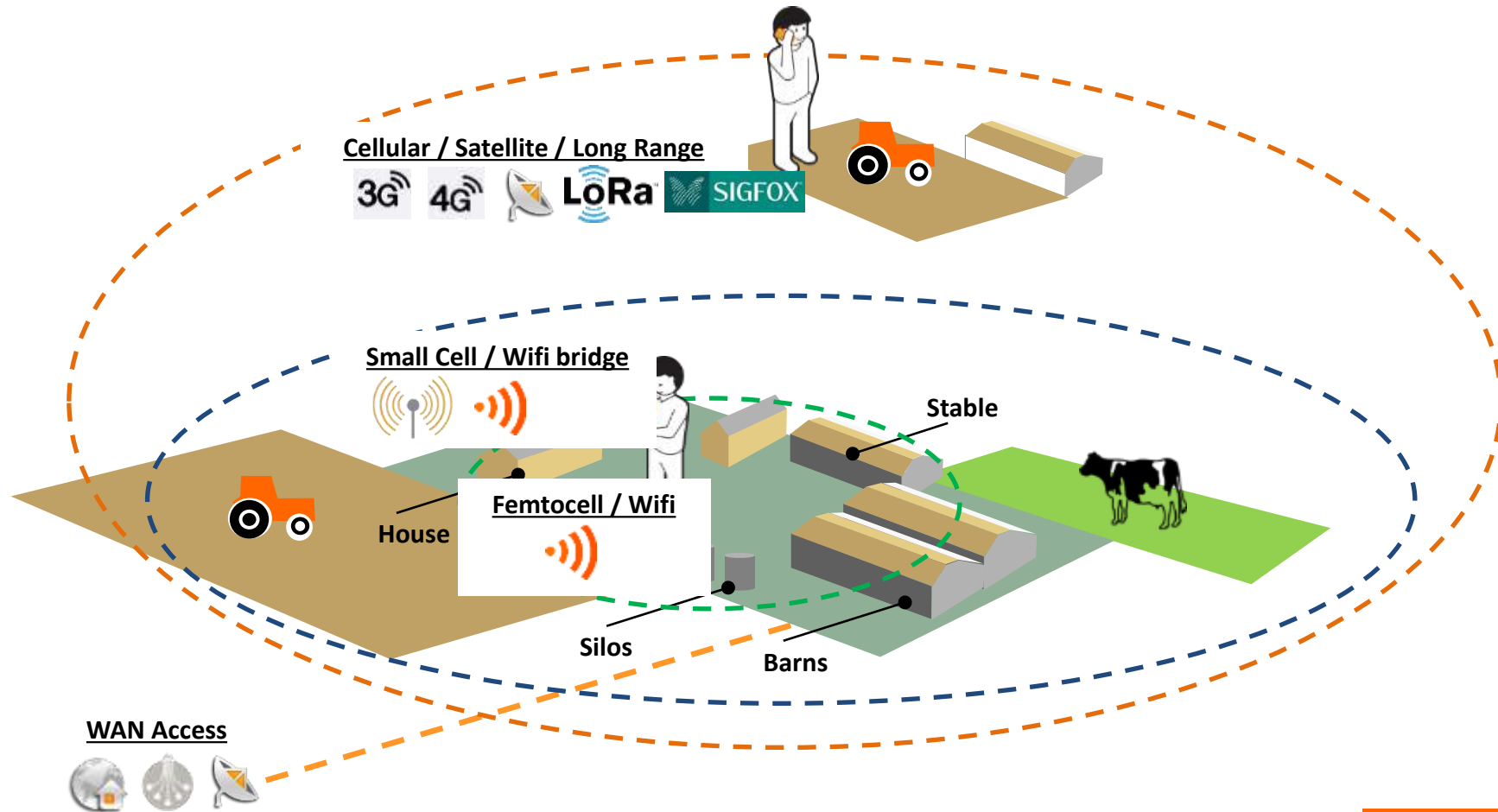
## ► Remote control / supervision / maintenance

- Mobile network: remote control difficult when outside of the Wifi network
- Fixed network: remote maintenance (milking robots) possible?





# Solutions to improve farm connectivity





# Solutions to overcome the lack of connectivity

► Off line software and devices



► Take advantage of « traceable » technologies



► Use the new IoT networks : long range/low flow (Sigfox, LoRa)

► Fixed monitoring ~~vs. mobile monitoring~~



# Take home message

## ➤ Strong interest of dairy farmers for digital applications

- **80% of surveyed farmers** are equipped with connected tools (67%) or will be short-term (13%)
- This represents **around 48 000 dairy farms** in France
- **Strong diversity** of the connected farmers → not only the big and intensive farms

## ➤ This involves new connectivity needs ...

- Farmers: farm management
- For their partners: data exchange and their potential use
- **Who should handle (and finance) the connectivity improvements: state, farmer, private telecom companies, farm partners (MRO, AI, feeding companies)?**



# Questions ?



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