

# My Pig: UHF ear tags (Ultra High Frequency)

## Motivation

RFID (Radio Frequency IDentification) offers opportunities to record information and manage based on that information. At large scale this is used in daily live. Project My Pig looks at the opportunities to apply RFID in pig farming. In 2012 commercial partners worked together to develop a useful and affordable ear tag. Most important criteria for a good RFID ear tag is to have less losses when brought in at day 1 after birth until slaughtering. At VIC Sterksel some ear tags were tested.

## Design

In total 430 piglets were put on an UHF ear tag. UHF RFID inlay was in the 'male part'; 215 piglets an ear tag with a thick pin (5 mm), 215 piglets an ear tag with a thin pin (3,5 mm). in both groups the ear tag was either put on at day 1 after birth or at day 7 after birth (50:50).

The physical losses (losing ear tag) and functional losses (ear tags that couldn't be read) were observed at the following moments:

- At weaning
- When entering finishers stable
- At slaughtering

Reading occurred with an handheld RFID reader, the Pision. At this moments also the healing of the wound and the size of the hole was observed.

At the farm diverse readers were tested out.

At the slaughterhouse the losses of the ear tags was also observed.



**Photo 1** ear tag with thick pin (left) and ear tag with thin pin (right)

## Involved parties

**MS Schippers**  
Passion for Farming



## Opportunities for the pig sector

### Results:

- With the used UHF ear tags the physical losses (losing ear tag) at the farm (put on until slaughtering) was **less than 2%**
- There was no significant difference in physical losses between pin thickness and day of putting on
- At weaning and when entering the finishers stable the amount of infections with the thick pin was **significantly** less than with the thin pin. Putting on at day 1 also significantly less infections than putting on at day 7. At slaughtering there was no difference.
- Size of the hole was **significantly smaller with the thin pin** and when **put on at day 7**, for both at weaning, when entering the finishers and at slaughtering.

Losses of ear tags at the slaughterhouse:

- From delivering until the scratch: **average 9,1%**
  - **Thick pin 12,9% versus thin pin 5,1%**
  - **Day 1 versus day 7 putting on 14,4% versus 3,9%**
- From scratch until burner: **average 5,3%**
  - Thick pin 5,6% versus thin pin 5,0%
  - Day 1 versus day 7 putting on 7,3% versus 3,5%

Reading the RFID numbers of a group of pigs (~4.5 months old) with a portable reader costs average 4.1 s per pig.

First tests with a static reader show that ~90% of the pigs can be read with a fixed position of the antenna. 285 pigs of the 318 finishers were read correctly. In total 15 false numbers were read (from pens in nearest rooms).

### Challenges:

- Potentially UHF has the following advantages towards LF (Low Frequency):
  - Read more animals at the same time (moving or registering group of animals)
  - Cheaper chip
  - Read from a larger distance
- Towards LF it has the following disadvantages:
  - Reading more animals at the same time can give problems with e.g. an automatic feeding station or registration of antibiotics use
  - The current readers and other equipment (feeding stations) is mostly driven by LF. This demands an other system.

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