PROGRESS IS boosting immunity

Change is in progress

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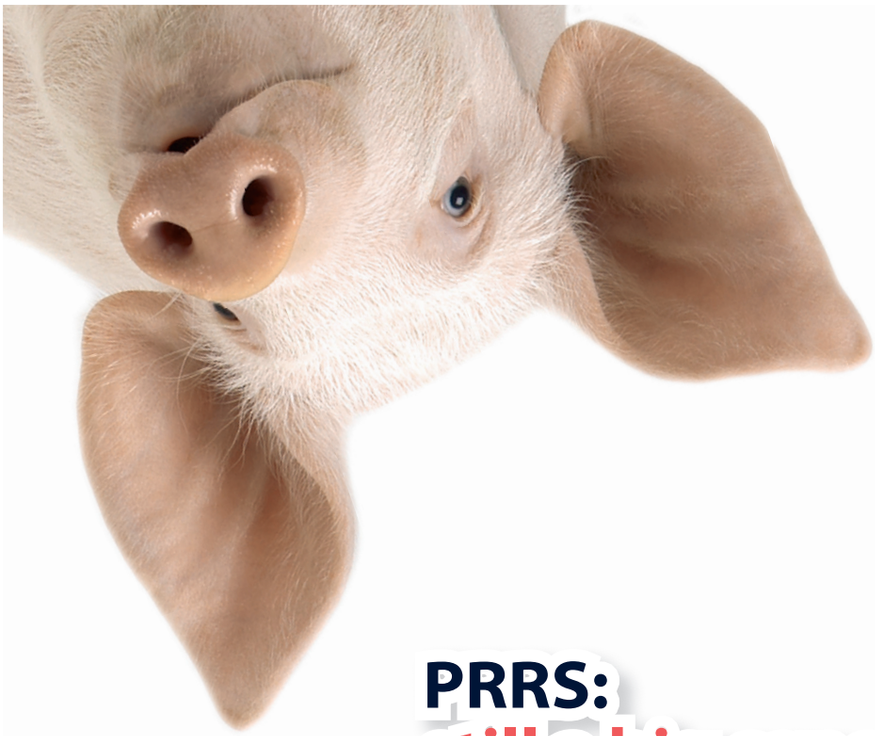


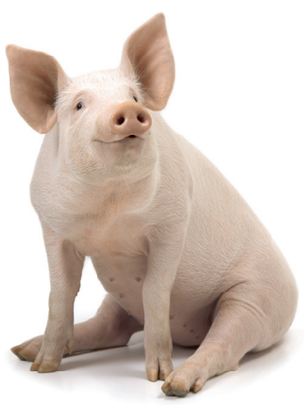
PRRS:
still a big concern for the swine industry

PRRS still is a huge economic concern

- Economic losses vary from € 59 to € 379 per sow during an outbreak[1]
- Yearly cost of infected farms is around € 100 per sow[1]

PRRS is difficult to control:

- Emerging circulation of variable field strains worldwide
- PRRS impairs immunity after infection:
  - Immune response is slow, delayed and often incomplete in comparison with other viral infections
  - Modified immune response after infection: increased susceptibility for other diseases
  - Immunity is affected by strain differences
  - Impaired reproductive and respiratory performances



PROGRESSIS® boosting immunity in a PRRS positive environment

PROGRESSIS®: safety profile

- No reverse to virulence possible (inactivated virus)
- Approved for use during pregnancy and lactation[2]
- Neither spread nor persistence of vaccine virus

PROGRESSIS®: efficacy by boosting immunity

- Reduction of reproductive disorders caused by PRRS in a contaminated environment:
  - Reduction of early farrowings (Fig. 1)
  - Reduction of stillbirths (Fig. 1)
  - Reduction of the number of viraemic piglets at weaning[5] (Fig. 2)

Fig. 1. Vaccination with Progressis in PRRS positive farms increases reproductive performance ($p<0.05$)[3].

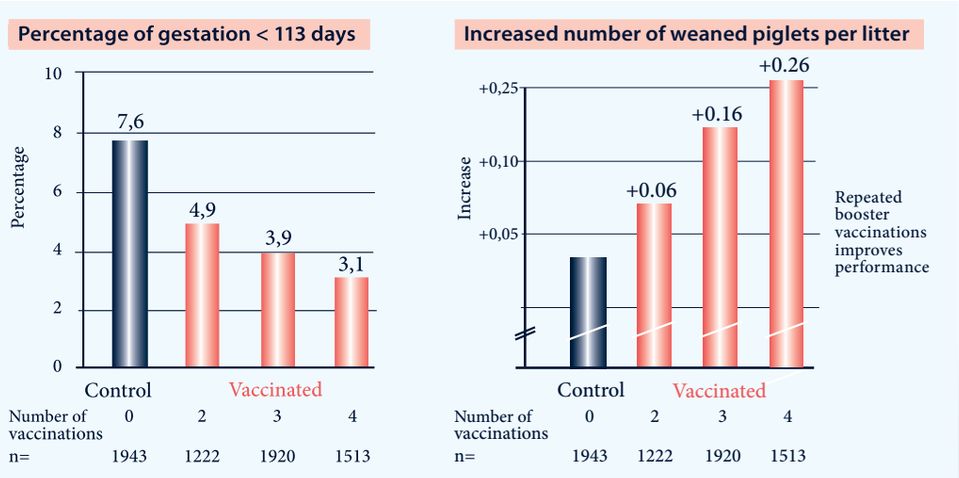
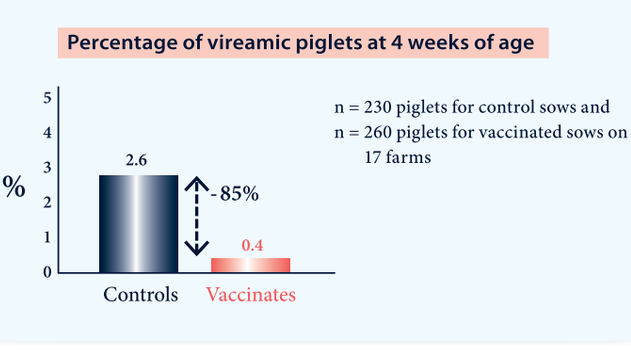


Fig. 2. Vaccination with Progressis in a PRRS positive farm reduces the number of PRRS viraemic piglets at weaning ($p<0.05$)[4].



PRRS immunity

Immunity against PRRS is based on both cell mediated and humoral immunity[5]

- Induction of immunity is slow

  Both cell mediated and humoral immunity play a role in protection

  - First (non-neutralizing) antibodies are present 1 to 2 weeks after infection
  - Neutralizing antibodies are induced after 21 to 28 days

- Some strains do not induce significant levels of neutralizing antibodies
  - Cell mediated immunity (CMI) is slowly developing

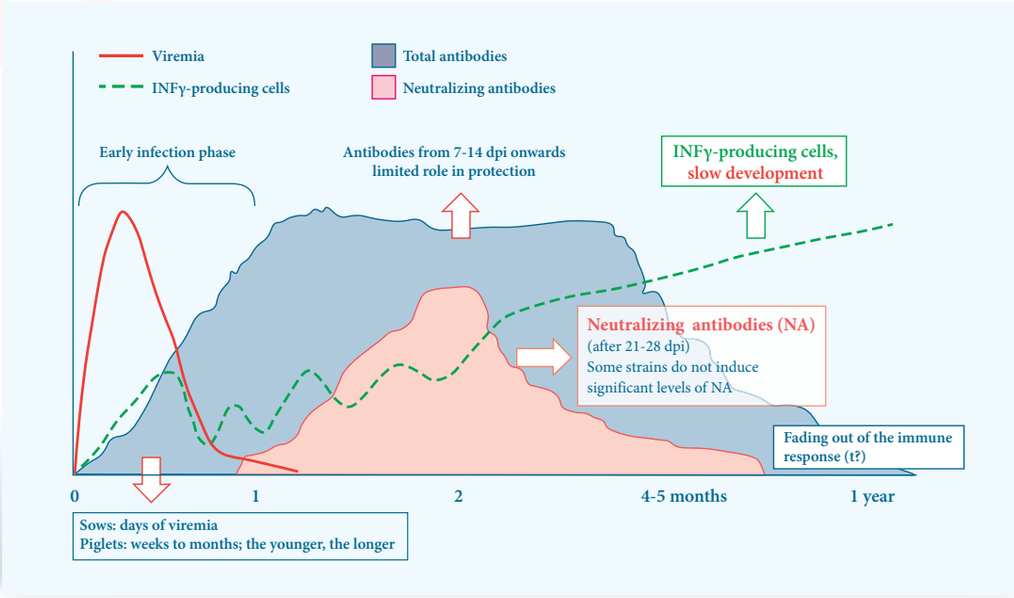


Fig. 3. Viral and immunological dynamics after PRRS infection[5]

PROGRESSIS® induces CMI and humoral immunity resulting in a broad and effective immune response

- PROGRESSIS induces ELISA and seroneutralizing (SN) antibodies[6]

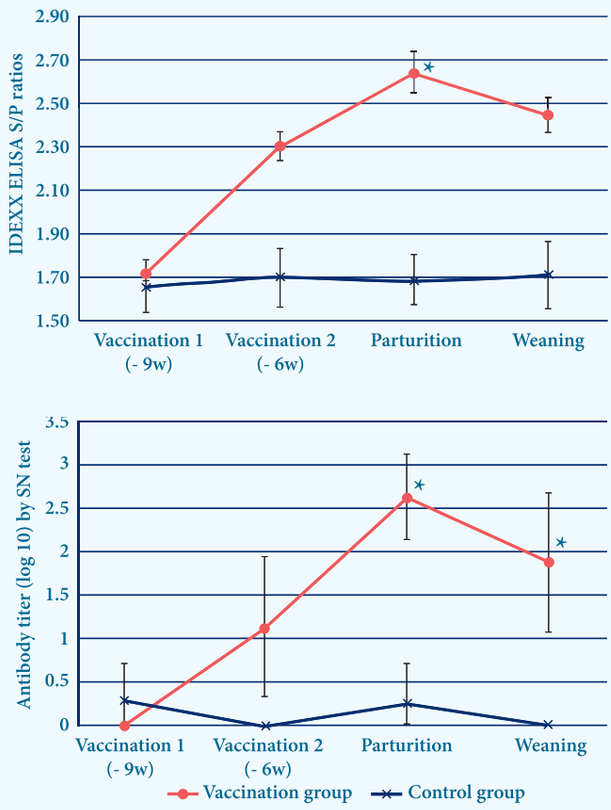
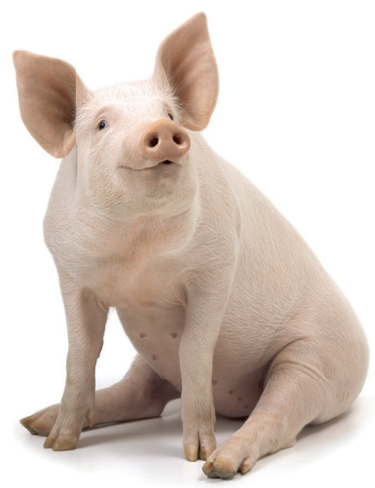
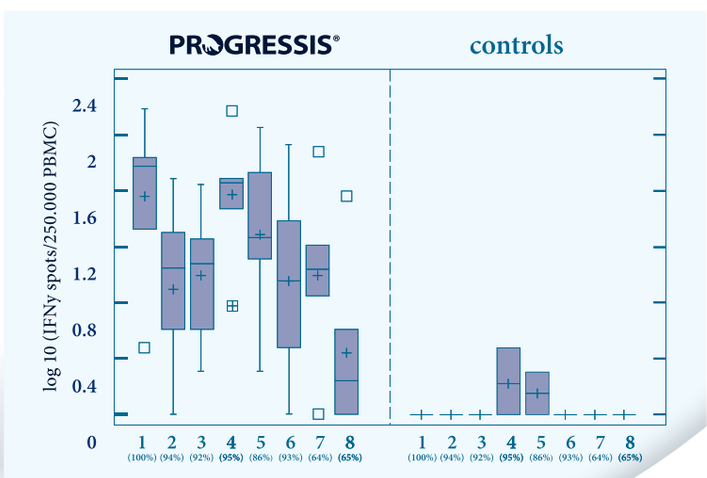


Fig. 4. Progressis induces IDEXX and SN antibodies after vaccination ($p<0.05$)[6].



- **PROGRESSIS®** induces a strong and early Cell Mediated Immunity (CMI)[7]
  - Induction of Interferon-γ secreting cells (INFγ-SC)
  - Against a broad range of PRRS field strains, type 1 and type 2

Fig. 5. Progressis vaccinated animals show CMI reaction against a range of different PRRS strains[7]



1-6 EU strains
(% homology GP5 nucleotides)
7+8 US strains
(% homology GP5 nucleotides)

Novelty in vaccination

A new concept: Dual Technology Prime Boost (DTPB)[9]

- Based on 2 different types of vaccine with the same antigen (eg. MLV and KV vaccine for PRRS)
- Overwhelming experience in different species and infections[11]
- Induction of broader and stronger immune response[9]

DTPB immunization strategy results in[10]:

- Strong cellular immune response
- Higher and more specific antibody response compared to homologous immunization

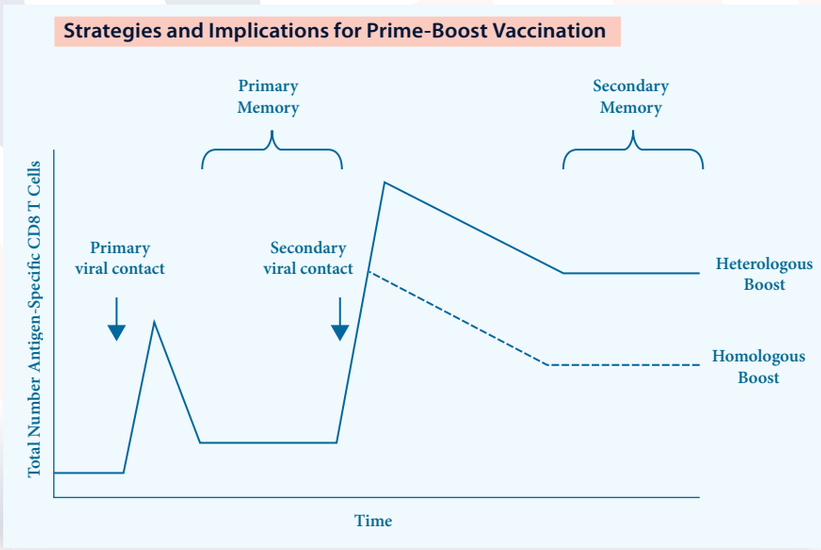


Fig. 6. DTPB can be more immunogenic compared to Homologous Prime Boost.[12]

In a contaminated environment, PROGRESSIS® boosts the CMI induced by a live PRRS virus[8]

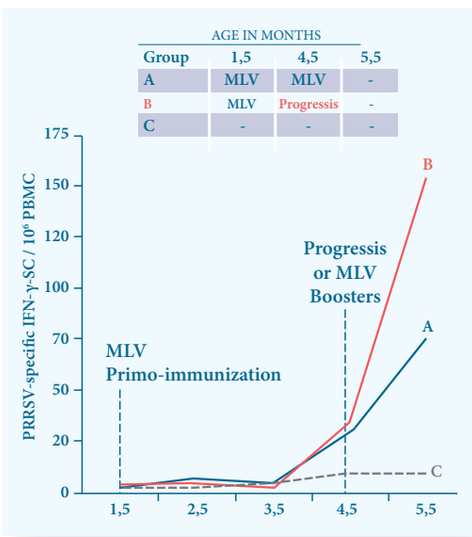


Fig. 7. Boosting the immunity induced by a MLV vaccine by Progressis results in a significantly higher CMI at 1 month after boost ($p<0.05$).

DTPB in practice: results from the field

Reproductive performance

In a 2000 sows farm in Belgium, implementing the DTPB concept with Progressis resulted in significant[13]:

- Increased number of live born piglets
- Reduced piglet mortality before weaning
- Increased number of weaned piglets

These results were confirmed in several studies[14,15,16]

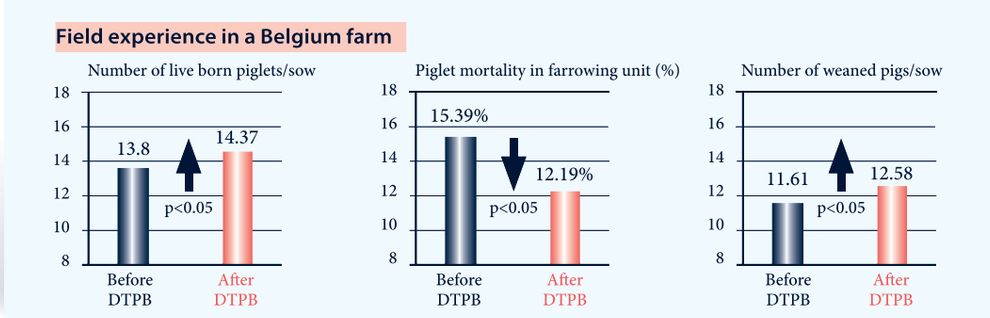


Fig. 8. Improvement of reproductive results after implementation of DTPB program[13].

Field monitoring

Reducing circulation of PRRS in a 1200 sow farrow to finish farm[17]

- Before the implementation of the DTPB program, PRRS circulation was observed from 3 weeks of age onwards.
- After implementation of the DTPB program, circulation was delayed and the infection was stabilized in sows and piglets.

Table 1. IDEXX PRRS S/P ratios in sera collected from piglets of 6 and 10 weeks of age before and 10 and 22 months after the start of the DTPB program in a 1200 FF farm[17].

	Before MLV only	After 10 months DTPB Program	After 22 months DTPB Program
Piglets of 6 weeks of age	2.14	2.96	1.04
	1.11	1.54	1.60
	2.35	1.15	1.88
	2.34	0.69	2.57
	2.19	2.8	2.30
Piglets of 10 weeks of age	2.55	0.28	0.67
	2.46	0.78	0.17
	3.06	0.08	0.08
	2.25	0.34	0.55
	2.87	0.58	0.56

Boosting the immunity with PROGRESSIS®

after priming with a live virus provides a broader and stronger immunity.

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Progressis® Emulsion for Injection for Pigs (sows and gilts) contains Inactivated Porcine Reproductive and Respiratory Syndrome (PRRS) virus, P120 strain. The product is indicated for the reduction of the reproductive disorders caused by Porcine Reproductive and Respiratory Syndrome virus (European strain) in a contaminated environment: vaccination reduces the number of early farrowings and the number of stillbirths. In PRRS infected herds, viral infection is heterogeneous and varies over time. In such context, the implementation of a vaccination program is a tool to improve the reproductive parameters and may contribute to the disease control in conjunction with sanitary measures. Amounts to be administered and administration route. One dose of 2 ml is administered by deep intramuscular route, in the neck muscles behind the ear, according to the following vaccination scheme. Primary vaccination:Gilts: 2 injections 3-4 weeks apart, at least 3 weeks before mating. Sows: 2 injections 3-4 weeks apart. Revaccination: One injection at 60-70 days of each gestation, as of the first gestation following the primary vaccination. Withdrawal period: Zero days. Pharmaceutical precautions Use immediately after opening. Store in a refrigerator (2°C – 8°C). Do not freeze. Protect from light.

For more details, see the SPC applicable in your country.

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