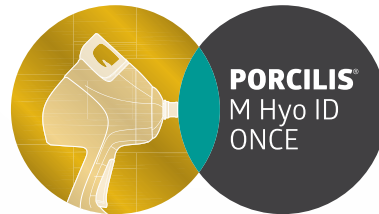




Porcilis® M Hyo ID ONCE

The only intradermal *Mycoplasma hyopneumoniae*
vaccine that can be administered with
a needle-free device



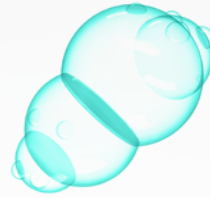
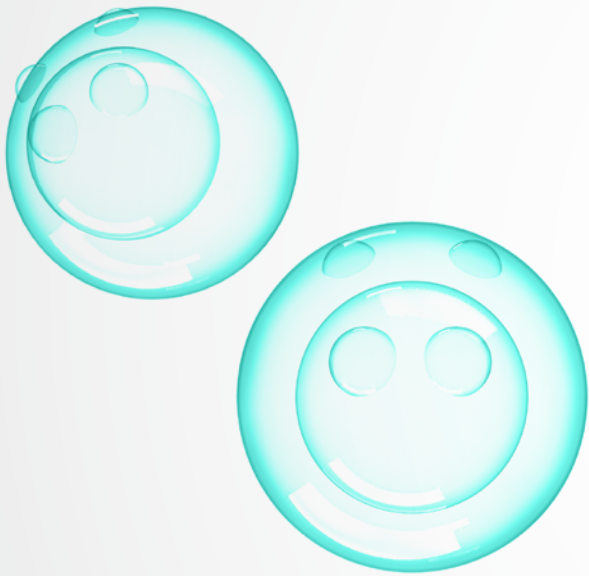
THE IDALWAY®

• Needle-free • Efficacy • Innovation •



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NAVIGATE THROUGH THE DOCUMENT

Contents



Porcilis® M Hyo ID ONCE

Porcilis® M Hyo ID ONCE benefits

IDAL® benefits

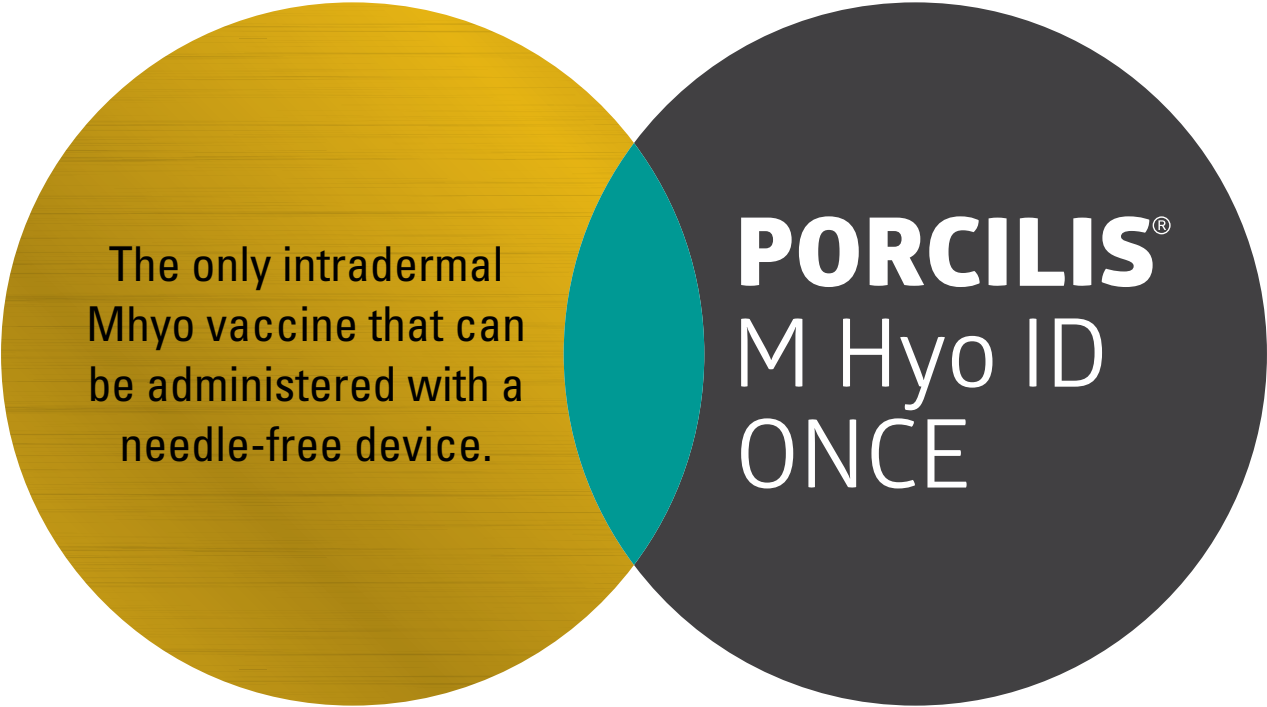
Why intradermal?

Trials: Efficacy

Productivity

Porcilis® intradermal range

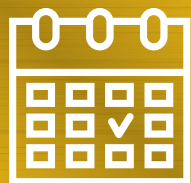




The only intradermal
Mhyo vaccine that can
be administered with a
needle-free device.

PORCILIS[®]
M Hyo ID
ONCE

Porcilis[®] M Hyo ID ONCE



PROTECTED THROUGHOUT PRODUCTION CYCLE

22 weeks of immunity following vaccination.



REDUCED RESPIRATORY DISEASE

Reduced Mhyo lung lesions.



REDUCED WEIGHT LOSS

Reduced loss of average daily gain during finishing period due to infection caused by Mhyo.



CONCURRENT USE

Porcilis[®] PCV ID can be given concurrently with Porcilis[®] M Hyo ID ONCE if separated by at least 3 cm.



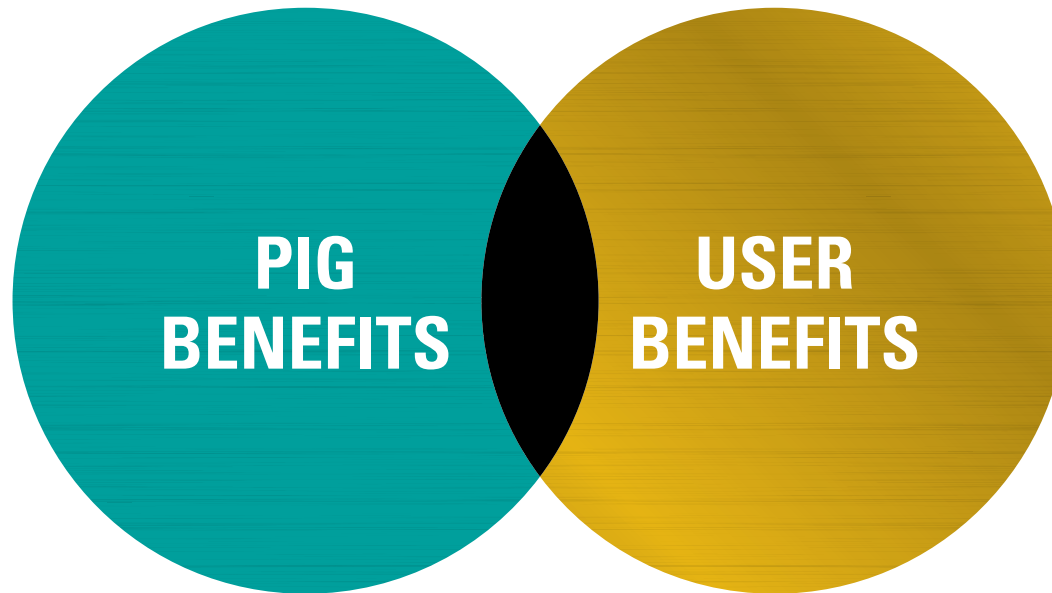
A good choice for you and the pigs

Vaccinating 'The IDAL® Way' is a good choice. Needle-free and intradermal application of vaccines is the most advanced method for vaccinating pigs today.

The ergonomically designed, reliable and easy-to-use IDAL® device makes vaccination safe and less stressful for people and pigs, while ensuring efficacy at the same time.

Together with the broadest range of specifically formulated intradermal vaccines – Porcilis® PCV ID, Porcilis® M Hyo ID ONCE, Porcilis® PRRS, Prime Pac® PRRS and Porcilis® Begonia IDAL – The IDAL® Way is an important step forward in controlling major diseases affecting pig operations worldwide.





WELFARE

No needles and a vaccination volume of only 0.2 ml means less pain and stress for the pigs. Fear and pain indicators at time of injection are reduced.⁴

Following vaccination, pigs recover more quickly, as indicated by less lying and more suckling.³

HYGIENE

Reduces risk of transmitting diseases between pigs caused by reusing needles.

SAFETY

Fewer adverse systemic events.^{1,2}

QUALITY

No risk of finding broken needles in the tissue that can cause damage.

EFFICACY

Delivers a quick and effective immune response.^{1,2} Antigen presenting cells in the dermis induce an effective immune response against a broad range of diseases. Pre-existing immunity may be overcome since (maternal) antibodies are not located in the skin.

EASE OF USE

The one-piece IDAL[®] device is easy to handle.

ACCURACY

The IDAL[®] device delivers a fixed vaccine volume under a constant pressure. Therefore, large numbers of pigs are vaccinated with the proper dose every time.

FLEXIBILITY

Pending on the vaccine, pigs can be vaccinated with IDAL[®] in various locations.

SAFETY

Needle-free vaccination reduces the risk of self-injection.

MEAT CONSISTENCY

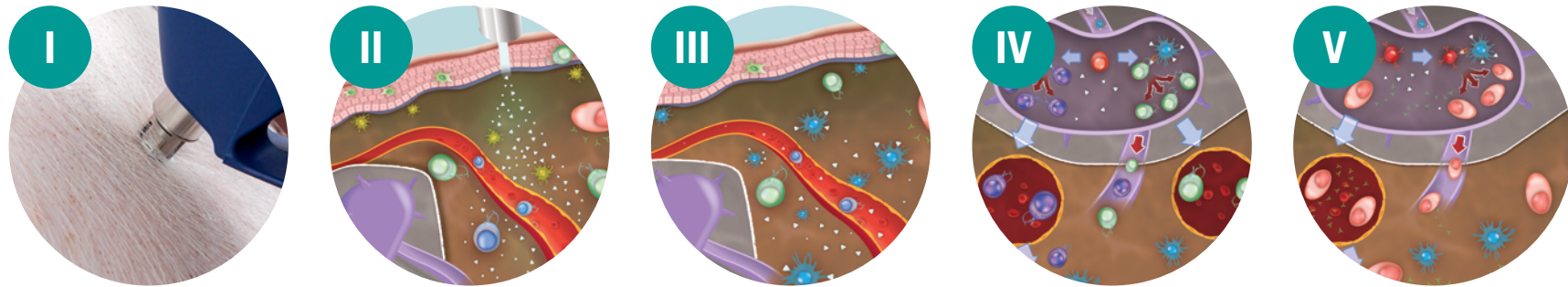
Potential damage to muscle tissue is reduced and there is no risk of needle pieces remaining in the meat due to broken needles.

Why intradermal vaccination stimulates an effective immune response

Compared to intramuscular (IM) administration, vaccination into the dermis is advantageous because high concentrations of powerful, specialized cells located in the skin respond very quickly and efficiently to vaccine antigens.

Studies show that intradermal (ID) vaccine administration can stimulate an immune response as efficiently as or better than IM administration.^{1,2}





- I II** Vaccine antigens are administered intradermal using the IDAL[®] device.
- III** Dendritic cells are activated in order to capture and process the antigens, carrying important information to the nearest skin-draining lymph node.^{5, 6}
- IV V** Once in the lymph node, dendritic cells present antigen materials to naive T lymphocytes and B lymphocytes found within the lymph node. Now activated, these cells stimulate a direct and strong immune response to the antigen so the pig can start building immunity against future infections. Cytotoxic T lymphocytes destroy virus-infected cells and provide cell-mediated immunity. Helper T lymphocytes help transform B lymphocytes into Plasma B lymphocytes, which produce specific antibodies and also provide humoral immunity.



Trials

Trials: Efficacy



Efficacy



Efficacy



Efficacy



Productivity



Productivity



Productivity



Productivity



Reduced lung lesions following Porcilis® PCV ID and Porcilis® M Hyo ID ONCE concurrent use

In two Hungarian field trials with Porcilis® PCV ID and/or Porcilis® M Hyo ID ONCE vaccination of 3 week old piglets Mhyo lung lesions were significantly reduced at slaughter.⁷



3,120 SUCKLING PIGLETS

Study A: 1,810 piglets

Study B: 1,322 piglets

Herds with confirmed PCV2 and Mhyo infections.



VACCINATION PROTOCOL

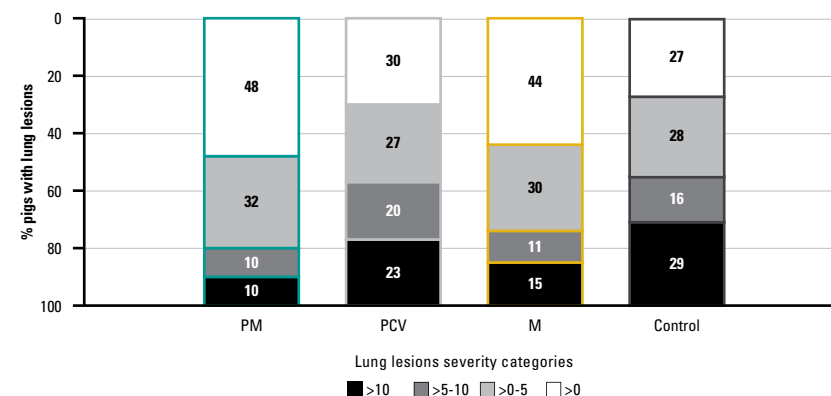
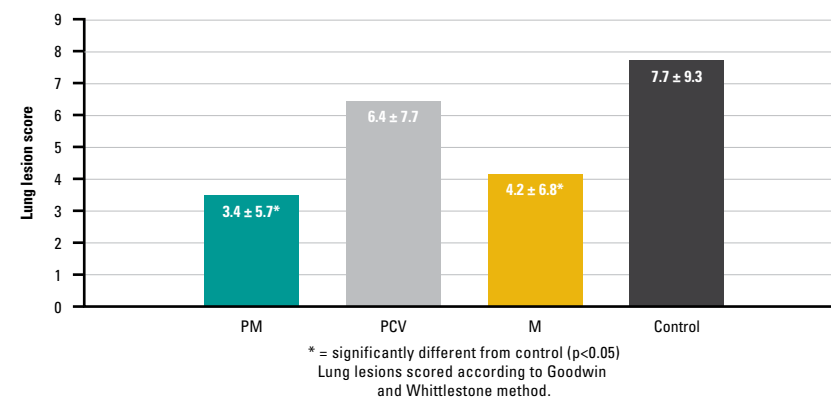
Group PCV – Vaccinated intradermal with Porcilis® PCV ID.

Group PM – Vaccinated intradermal with Porcilis® PCV ID and Porcilis® M Hyo ID ONCE concurrently.

Group M – Vaccinated intradermal with Porcilis® M Hyo ID ONCE single 0.2 ml dose. Group M was in Study B only.

Group C – Untreated control group.

FIGURE 1: Reduced Mhyo-like lung lesion scores at slaughter. Lung lesions were scored on a scale from 0 to 55 according to Goodwin & Whittlestone.



Intradermal Mhyo vaccination reduces lung lesions at slaughter in a German farrow-to-finish farm

Under the conditions of the study, intradermal Mhyo vaccination significantly reduced the mean lung lesion score at slaughter indicating an improvement of the lung health.⁹



420 PIGLETS

VC1 – 138 pigs
VC2 – 144 pigs
CG – 138 pigs

Vaccinated at 21 days of age.



VACCINATION PROTOCOL

Group VC1 – Vaccine groups needle-free –
Porcilis® M Hyo ID ONCE, IDAL®.

Group VC2 – Vaccine group with needle – M+PAC.

Group C – Untreated control group.

FIGURE 1: Mean lung lesion score by treatment group.
(scored on a scale from 0 to 100%).

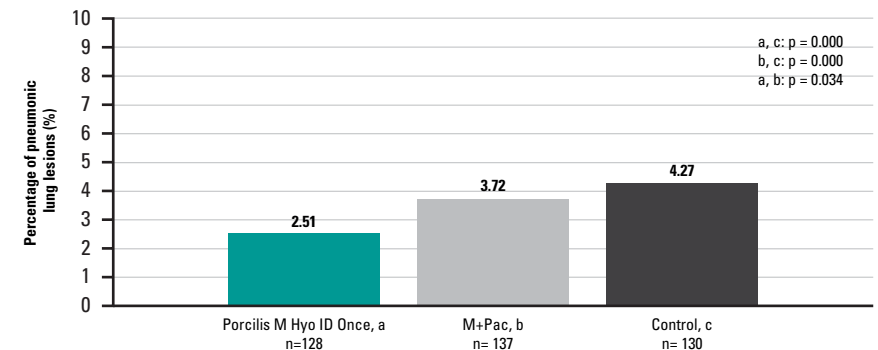


FIGURE 2: Number of animals with pneumonic lung lesions at slaughter and mean extent of lung lesions by study group.

Study group	Number of pigs n	Mean extent of pneumonic lung lesions (%)	SD	Lung lesion category		
				0%	>0%–5%	>5%
				n / %	n / %	n / %
Group VC1	128	2.51 ^a	±9.34	40 (31.3%) ^a	78 (60.9%) ^a	10 (7.8%) ^a
Group VC2	137	3.72 ^b	±13.10	22 (16.1%) ^b	103 (75.2%) ^b	12 (8.8%) ^b
Group C	130	4.27 ^c	±9.93	10 (7.7%) ^c	95 (73.1%)	25 (19.2%) ^b

Values with different letters within a same column are significantly different; p≤0.005.

Intradermal Mhyo vaccination reduces morbidity, Mhyo lung lesion scores and pleuritis lesions

Under the field conditions in this study, intradermal vaccination significantly reduced the prevalence and severity of Mhyo associated pneumonia and pleuritis lesions and performed better than a single-dose experimental intramuscular vaccine with respect to morbidity and lung lesion score. Compared to the controls, approximately 10.4% fewer clinical cases were diagnosed in the intradermal group, and 6% fewer in the intramuscular group, during the finishing period.¹¹



1,051 PIGLETS
Vaccination at 28 ± 3 days.



VACCINATION PROTOCOL
Group ID – Intradermal: 346 piglets vaccinated ID with 0.2 ml of Porcilis® M Hyo ID ONCE (MSD AH).
Group IM – Intramuscular: 351 piglets vaccinated IM with 2 ml of experimental Mhyo bacterin.
Group C – Controls: 354 piglets injected with a placebo (adjuvant only).



FIGURE 1: Number of clinically diseased pigs and percentage (morbidity) by period, indication and experimental group.

Period	Indication	Group ID	Group IM	Control
Nursery period	Respiratory	5	7	9
	Other	66	67	69
	Total ^a	71/346 (20.5%) ^b	74/351 (21.1%) ^b	78/354 (22.0%) ^b
Finishing period	Respiratory	10	22	42
	Other	7	9	10
	Total ^a	17/335 (5.1%) ^b	31/336 (9.2%) ^c	52/336 (15.5%) ^c

^a Number of diseased pigs/number of pigs in the group (%).

^{a, b} Values with different superscripts in the same row differ significantly (P<0.05).

FIGURE 2: Number of lungs with lesions associated with enzootic pneumonia at slaughter and mean (±sd) lung lesion scores and pleuritis scores by experimental group.

Period	Group ID (n=325)	Group IM (n=319)	Control (n=310)
Lesion score >0	267	288	293
Mean (±sd) score	7.03±6.9 ^a	10.75±7.2 ^b	13.13±7.3 ^c
	Pleuritis score/ trial group		
Spots (score=2)	67	127	142
Larger adhesions (score=3)	17	23	44

^{a, b, c} Values with different superscripts in the same row differ significantly (P<0.05).



EFFICACY TRIAL — SPAIN

Efficacy of intradermal Mhyo vaccination is as good as other conventional Mhyo control strategies

Intradermal Mhyo vaccination with IDAL[®] was safe and efficacious (based on lung lesion scores) when compared to previously used conventional IM vaccination or antibiotic treatment strategies in the study farms. Therefore, intradermal Mhyo vaccination can be considered another tool in Mhyo control.¹⁰



VACCINATION PROTOCOL

Group 1 – Porcilis[®] M Hyo ID ONCE vs macrolide treatment.

Group 2 – Porcilis[®] M Hyo ID ONCE vs IM vaccination.



2,245 SOWS

Farm A: 1,250 sows

Farm B: 1,175 sows

ID vaccination at 14 days

IM vaccination at 7 days

	FARM A		FARM B	
	MACROLIDE GROUP	IDAL [®] GROUP	IM	ID
Prevalence of lesions	32.47%	16.85%	19.4%	20.9%
Disease Index	0.6	0.32	0.41	0.36
Severe lesions	3.07%	1.9%	3.55	1.6%



Better growth following Porcilis® PCV ID and Porcilis® M Hyo ID ONCE concurrent use

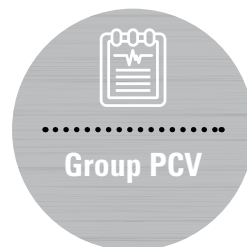
In two Hungarian field trials with both PCV2 and Mhyo vaccination with Porcilis® PCV ID and/or Porcilis® M Hyo ID ONCE of 3 week old piglets average daily weight gain (between 44 and 59 g/day) in the finishing phase was significantly improved.⁷



3,120 SUCKLING PIGLETS

Study A: 1,810 piglets
Study B: 1,322 piglets

Herds with confirmed PCV2 and Mhyo infections.



VACCINATION PROTOCOL

Group PCV – Vaccinated intradermal with Porcilis® PCV ID.

Group PM – Vaccinated intradermal with Porcilis® PCV ID and Porcilis® M Hyo ID ONCE concurrently.

Group M – Vaccinated intradermal with Porcilis® M Hyo ID ONCE single 0.2 ml dose. Group M was in Study B only.

Group C – Untreated control group.



FIGURE 1: Uninhibited growth during the nursery phase.

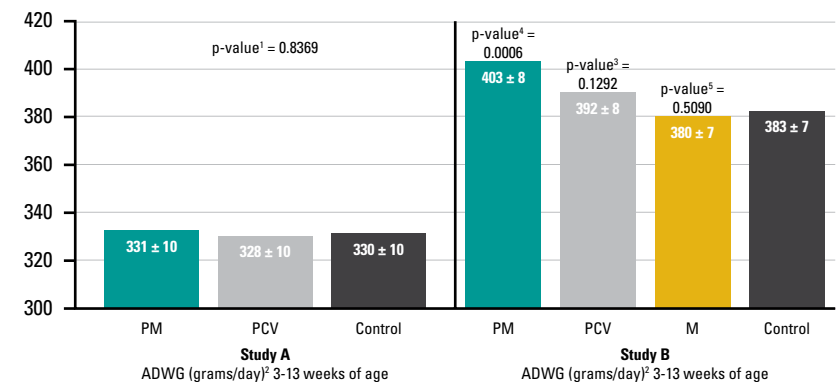
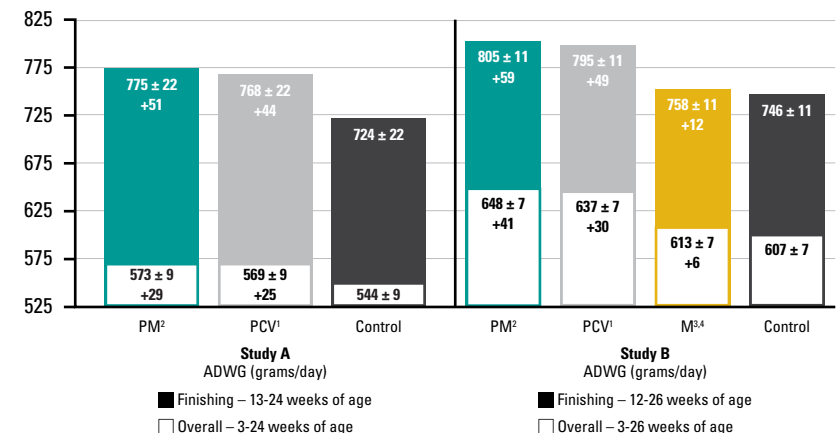


FIGURE 2: Increased ADWG throughout the entire study period.



Mhyo vaccination shortens the finishing period

The study results support that the intradermal administration of Porcilis® M Hyo ID ONCE improves average daily weight gain and bodyweight at the end of finishing as well as intramuscular vaccination. In addition, the mean finishing period was shortened to 96 days for both vaccinated groups compared to 98 days for the control group ($p \leq 0,014$).⁹



420 PIGLETS

VC1 – 138 pigs

VC2 – 144 pigs

CG – 138 pigs

Vaccinated at 21 days of age.

VACCINATION PROTOCOL

Group VC1 – Vaccine groups needle-free –
Porcilis® M Hyo ID ONCE, IDAL®.

Group VC2 – Vaccine group with needle – M+PAC.

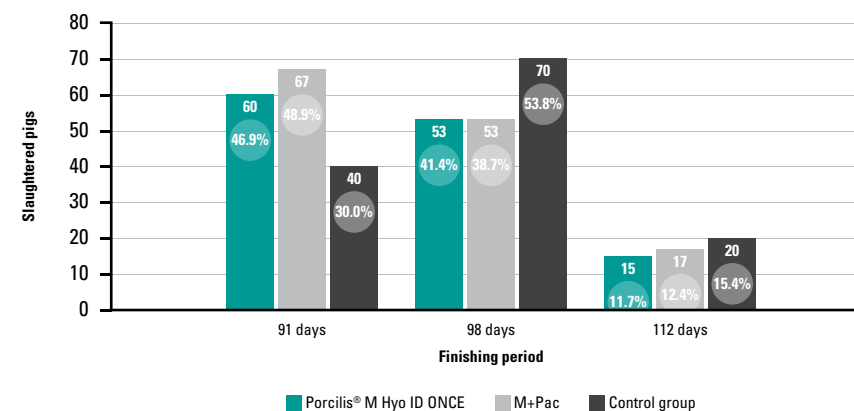
Group C – Untreated control group.

FIGURE 1: Performance parameters: average daily weight gain (g/day) and body weight (kg).

	PERIOD	VC1	VC2	CG
BDW	3 week	6.25	6.18	6.24
ADWG	3-11 week	434.82	438.12	422.69
BDW	11 week	30.16	30.28	29.49
ADWG	11-24 week	913.44 ^{*1}	924.54 ^{*2}	875.57 ^{*3}
BDW	25 week	112.3 ^{*4}	113.49 ^{*5}	108.29 ^{*6}
ADWG	3-25 week	731.89 ^{*7}	740.03 ^{*8}	703.79 ^{*9}

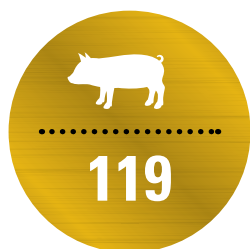
^{*1}, ^{*2}, ^{*3}, ^{*4}, ^{*5}, ^{*6} $p \leq 0.005$ ^{*7}, ^{*8}, ^{*9} $p \leq 0.004$.

FIGURE 2: Amount of pigs slaughtered at different points by treatment group.

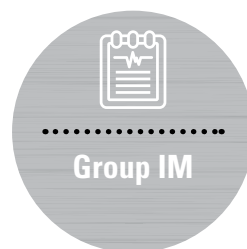


Improved productivity following concurrent vaccination with Porcilis® PCV ID and Porcilis® M Hyo ID ONCE

Under the conditions of this study, ID pigs had a significantly higher ADG than IM pigs, resulting in a higher average live weight at slaughter. The extra 3.3 kg of live body weight represented a significant increase in profitability of £1.90 per pig at slaughter (including feed cost).⁸



119 WEANED PIGLETS
History of PCV2 circulation and *Mycoplasma hyopneumoniae*-like lung lesions.



VACCINATION PROTOCOL

Group ID (N = 61) – vaccinated with Porcilis® PCV ID (0.2 ml) and Porcilis® M Hyo ID ONCE (0.2 ml).

Group IM (N = 58) – vaccinated concurrently with a 2 ml PCV2 intramuscularly and a Mhyo vaccine (0.2 ml intradermal).

FIGURE 1: Live weight (kg) at the end of the finishing period for the ID and IM group. Different superscripts (a, b) indicate significant difference ($p < 0.05$).

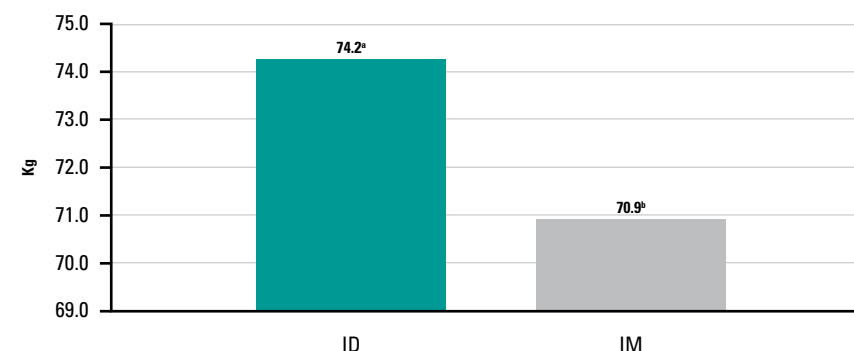
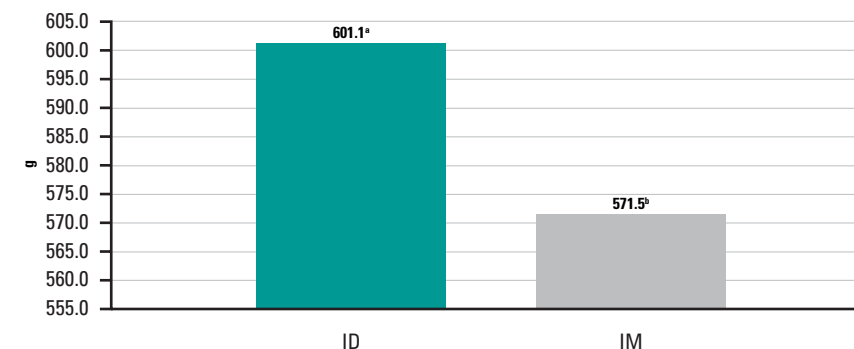


FIGURE 2: Average daily live weight gain from weaning to slaughter (period of 113 days) for ID and IM group. Different superscripts (a, b) indicate significant difference ($p < 0.05$).



Mhyo vaccination improves average daily gain in Greek farm

The ADG during the finishing phase improved 27 g/day for the intradermal group compared to the control, which was better than the 17 g/day for the intramuscular group.¹¹



1,051



28 days

1,051 PIGLETS

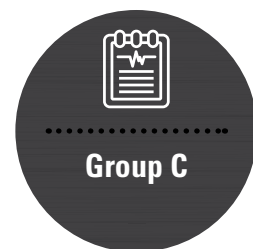
Vaccination at 28 ± 3 days.



Group ID



Group IM



Group C

VACCINATION PROTOCOL

Group ID – Intradermal: 346 piglets vaccinated ID with 0.2 ml of Porcilis® M Hyo ID ONCE (MSD AH).

Group IM – Intramuscular: 351 piglets vaccinated IM with 2 ml of experimental Mhyo bacterin.

Group C – Controls: 354 piglets injected with a placebo (adjuvant only).

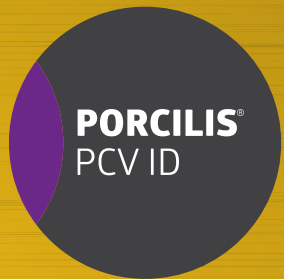
FIGURE 1: Average daily gain (g/day) by period and by experimental group (mean±sd), and average bodyweights (kg) at each weighing and by experimental group (mean±sd).

	GROUP ID (N=346)	GROUP IM (N=351)	CONTROL (N=354)
Nursery period	472±85	459±86	461±88
Finishing period	666±35 ^a	647±36 ^a	640±37 ^b
Total period	623±33 ^a	605±34 ^a	600±33 ^b
Average bodyweights (kg)/trial group			
At vaccination	6.4±1.3	6.4±1.3	6.4±1.2
End of nursery	22.8±3.8	22.4±3.6	22.4±3.9
At slaughter	103.2±5.4 ^a	100.5±5.5 ^a	99.5±5.3 ^b

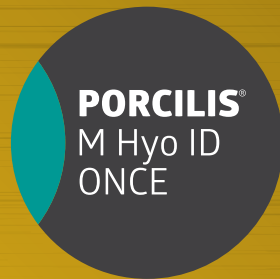
^{a, b} Values with different superscripts in the same row differ significantly (p < 0.05)



Porcilis® intradermal vaccine portfolio for needle-free administration



The first intradermal PCV vaccine for active immunization of pigs as early as 3 weeks of age. Vaccination reduces PCV2 viremia, viral load in lung and lymphoid tissue, and virus shedding. In addition, loss of daily weight gain and mortality associated with a PCV2 infection are also reduced. Duration of immunity is 23 weeks following vaccination.



One-dose vaccine for immunization of piglets as early as 3 weeks of age to reduce lung lesions and decrease in daily weight gain during the finishing period following a *Mycoplasma hyopneumoniae* infection.



Modified live vaccine for the immunization of pigs against PRRSv throughout the production system from as early as 2 weeks of age.



Modified live vaccine for immunization of pigs as early as 2 weeks of age against PRRSv-2.



Live, attenuated vaccine for the immunization of pigs against Aujeszky's disease virus (Pseudorabies) infections.



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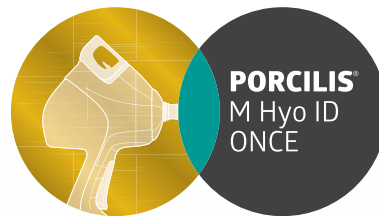
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THE IDAL[®] WAY

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