

## Approved Projects -2011

Project ID	Title	Milestone	Milestone details
1A-103	Optimising the time of mating in easy-to-manage lactation systems to improve pregnancy outcomes and weaning	1.2.3, 1.2.5	Implement new oestrus and mating management techniques and new housing systems on 20% of commercial farms (minimum 85% viable pregnancies). Develop and deliver training programs/packages in Oestrus and mating management techniques on 35% of commercial farms (target a minimum pregnancy rate of 80%).
1A-104	Maximising fertility and fecundity of sows mated during lactation	1.2.2, 1.2.3	Demonstration sites for multi-suckling systems and piglet separation techniques established on key end-user farms. Implement new oestrus and mating management techniques and new housing systems on 20% of commercial farms (minimum 85% viable pregnancies).
1A-105	Developing commercially-viable, confinement-free farrowing and lactation systems	1.1.5, 1.2.2, 1.2.3	Publish developed management procedures and industry manual for confinement-free sows supplemented with farrowing crate use for the first 7-14 days. Demonstration sites for multi-suckling systems and piglet separation techniques established on key end-user farms. Implement new oestrus and mating management techniques and new housing systems on 20% of commercial farms (minimum 85% viable pregnancies).
1A-106	Development of a lactational oestrus induction protocol that can be implemented in confinement free sow housing systems	1.5.4, 1.2.5	Reduced culling of sows by 25% as a result of aggression and interactions alleviated through new grouping/management techniques. Develop and deliver training programs/packages in Oestrus and mating management techniques on 35% of commercial farms (target a minimum pregnancy rate of 80%).
1A-107	Reducing early embryonic loss in the pig	1.2.3	Implement new oestrus and mating management techniques and new housing systems on 20% of commercial farms (minimum 85% viable pregnancies).

Project ID	Title	Milestone	Milestone details
1B-101	Novel strategies to enhance creep attractiveness and reduce piglet mortality	1.4.3, 1.4.4	Implement first commercial "gradual" weaning systems with growth rates in the first two weeks post weaning growth rates to be at least 150 g/d and pre-weaning mortality beyond the first 7 days after farrowing to be less than 4%. New creep diets developed and delivered by SME's and corporate mills.
1C-102	Effects of aggressive characteristics of individual sows and mixing strategies on the productivity & welfare of group-housed gestating sows	1.5.4	Reduced culling of sows by 25% as a result of aggression and interactions alleviated through new grouping/management techniques.
1C-103	Optimising the management of group-housed gestating sows.	1.5.4	Reduced culling of sows by 25% as a result of aggression and interactions alleviated through new grouping/management techniques.
1C-104	Lactation Pens	1.1.3, 1.1.5	At least two producer workshops and two field days delivered on new management options. Publish developed management procedures and industry manual for confinement-free sows supplemented with farrowing crate use for the first 7-14 days.
1C-105	Effects of floor space on the welfare of group-housed sows	1.5.4	Reduced culling of sows by 25% as a result of aggression and interactions alleviated through new grouping/management techniques.
1C-106	Reducing aggression in group-housed gestating sows through manipulation of dietary water holding capacity and hind-gut fermentation substrates to control gut distension and blood VFA levels	1.5.4	Reduced culling of sows by 25% as a result of aggression and interactions alleviated through new grouping/management techniques.

Project ID	Title	Milestone	Milestone details
2A-101	Validation of a data collection protocol on Australian Pig Farms	2.1.3	Health monitoring system incorporating real time feed and water intake commercialised.
2A-102	Real-time detection of airborne pathogens in the piggery	2.1.2	IgA ELISA systems developed for <i>Actinobacillus pleuropneumonia</i> (APP) to allow more precise diagnosis and enhance treatment systems developed in current Pork CRC.
2A-103	Comparing The Mucosal And Systemic Immune Response After APP-Alive Vaccination With Natural Challenge	2.1.2, 2.1.3	IgA ELISA systems developed for <i>Actinobacillus pleuropneumonia</i> (APP) to allow more precise diagnosis and enhance treatment systems developed in current Pork CRC. Health monitoring system incorporating real time feed and water intake commercialised.
2A-104	Evaluation of diagnostic tests to detect <i>Clostridium difficile</i> in piglets	2.1.3	Implement diagnostic tests for enteric pathogens. Utilisation of new diagnostic tools for <i>E coli</i> , ileitis and swine dysentery
2B-101	Quantifying variation in environments within and across herds	2.2.3	Determine genetic parameters for immune competence traits in Australian genotypes. Establishment of genomic and phenotypic relationships for robustness traits using overseas and Australian genetics.
2B-102	Development of economic methodology to incorporate robustness in pig breeding programs	2.2.3	Determine genetic parameters for immune competence traits in Australian genotypes. Establishment of genomic and phenotypic relationships for robustness traits using overseas and Australian genetics.
2C-102	Strategies to quantitatively measure and reduce the load of <i>Lawsonia</i> in commercial herds	2.3.3	First suite of Eco-suppressive agents developed and tested.
2C-103	Evaluating the efficacy of a Live APP vaccine with and without bacterin vaccines	2.3.3, 2.3.5	First suite of Eco-suppressive agents developed and tested. New vaccines composed entirely of virulence gene antigens developed.
2C-104	Assessment of the efficacy and safety of a live, attenuated, oral <i>Erysipelothrix rhusiopathiae</i> vaccine that can be administered to pigs via the drinking water and evaluation of the impact of erysipelas on morbidity, mortality, growth rates and feed conversion efficiency through a large scale field study comparing the outcomes in vaccinated and non-vaccinated pigs	2.3.3, 2.3.5	First suite of Eco-suppressive agents developed and tested. New vaccines composed entirely of virulence gene antigens developed.
2C-105	Use of plant derived compounds to condition piglet intake at weaning and reduce post-weaning use of therapeutics	2.3.3, 2.3.4	First suite of Eco-suppressive agents developed and tested. Misting technologies for disinfectants based on real time monitoring of pathogen challenge commercialised.

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2C-106	Bacteriophage-displayed peptides for the control of pathogens in swine	2.3.2	Gene based probiotics and bacteriophages developed and tested.
2C-107	Investigation of oral rennin (chymosin) supplementation as a farm level protocol to improve the passive transfer of immunity in neonatal piglets.	2.3.3	First suite of Eco-suppressive agents developed and tested.

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3A-101	Body composition & immuno castration	3.1.4	An on-line screening test for markers to determine whether male pigs have received a second dose of the boar taint vaccine, Improvac.
3A-102	Physi-Trace automated interpretation tool	3.1.2	PorkScan carcass and primal classification technologies on-line Physi-Trace™ technology to guarantee integrity for further manufactured products made with High Integrity Australian pork.
3A-103	EQ Pathway	3.1.3	Pork quality predictive model for established supply chains validated.
3A-104	PorkScan	3.1.2	PorkScan carcass and primal classification technologies on-line Physi-Trace™ technology to guarantee integrity for further manufactured products made with High Integrity Australian pork.
3B-101	The flavour of pork as related to low pH and meat quality	3.2.2	Fresh Australian pork with improved display life and colour stability achieved by supplementing pigs with natural products.
3C-105	Acute response: metabolic analysis	3.3.2	Demonstrate that Vitamin B5 derivatives present in pork can lower low-density lipoprotein, triglyceride levels and total cholesterol of humans. Pork Nutritional and Health information packages developed for health professionals. Demonstrate the effects of the nutrients in pork on the rate of digestion and absorption on satiation of people. Define the longer term benefits of high protein, high pork diets on cardio-metabolic health and weight maintenance.

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4A-101	Algae for Energy & Feed	4.1.1 4.1.2	Desk top studies and reviews conducted to determine the feasibility and economics of various algae production systems. Identification and selection of algae species that most closely match the nutrient requirements of pigs.
4B-110	Upgrading NIR calibrations for total and reactive lysine in soybean meal	4.3.2	Real-time NIR technology used on-line in commercial situation. Enhanced NIRS calibrations for cereal grains, including corn.
4B-111	Improving the utilisation of cereals and pulses	4.4.2	Influence of particle size homogeneity and moisture integrity of grains on milling efficiency and pig performance established.
4B-112	Optimising particle size distribution for grains and protein sources	4.4.2	Influence of particle size homogeneity and moisture integrity of grains on milling efficiency and pig performance established.
4C-101	LCA of waste treatment and additional pork supply chains	4.5.2 4.5.3 4.5.4	Establish pilot/demonstration sites for carbon reduction and greenhouse gas mitigation studies. Strategies to maximise methane production from anaerobic ponds. On-farming training begins in revised effluent management systems. Run LCA to confirm expected reductions in greenhouse gas emissions. Recruitment of second postgraduate student in the subprogram
4C-102	NIWA- Covered anaerobic pond design capabilities	4.5.2 4.5.3 4.5.4	Establish pilot/demonstration sites for carbon reduction and greenhouse gas mitigation studies. Strategies to maximise methane production from anaerobic ponds. On-farming training begins in revised effluent management systems. Run LCA to confirm expected reductions in greenhouse gas emissions. Recruitment of second postgraduate student in the subprogram
4C-103	Assessment of low cost biogas purification media	4.5.2	Establish pilot/demonstration sites for carbon reduction and greenhouse gas mitigation studies.