

# Review of Strategy 2015 – 2020

*Teagasc Pig Development Department*



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# Introduction

Teagasc's Mission is to support science-based innovation in the agri-food sector and wider bioeconomy to underpin profitability, competitiveness, and sustainability. The Pig Development Department aims to fulfil this mission by providing research, advice, and education across a range of relevant issues.

**Our vision is to increase profitability in the pig sector by producing environmentally sustainable and welfare friendly pig meat to the highest safety and quality standards.**

As part of the actions in the strategy 2015-2020, Teagasc built a new state-of-the-art Pig Research Facility at Moorepark with a cost of over 3 million euro. Independent applied research is carried out by a strong research team at this facility as well as on commercial pig farms around Ireland. Pig producers showed their commitment to the on-going research and knowledge transfer programme being delivered by Teagasc by signing up to the Teagasc/IFA Joint Programme (JP) in May 2013.

As a result of funding provided via the JP levy, Teagasc appointed two Specialist Pig Development Officers, two Research Officers and a Research Technician to help deliver an agreed pig research, knowledge transfer and education programme. Previous studies have shown up to 25:1 return on investment for pig research programmes, i.e. for every €1 invested in research there was a €25 return to the producers from adopting the research findings. The results of the Teagasc/IFA JP in its first 5 years of existence are analysed below.

## Targets

The strategy document for the period 2015 to 2020 included productive performance targets to be achieved in 2019 and these are compared to actual results now available for 2019 in the table:

	Base average performance in 2014	Performance targets for 2019			Performance Achieved in 2019		
		Average	Top 25%	Top 10%	Average	Top 25%	Top 10%
Pigs sold/Sow/Year	25.3	27	28.5	30	26.8	28.9	30.2
Wean-to-Sale FCE	2.49	2.40	2.30	2.25	2.44	2.28	2.22

To reach these targets, the research and knowledge transfer programme delivered by Teagasc included a series of initiatives that are analysed in the following section.



## Analysis of the initiatives in strategy 2015-2020

The significant initiatives proposed in the Teagasc Pig Development Department strategy 2015-2020 are described in the following tables as completed (*green*), work in progress (*orange*) and not completed (*red*).

**Table 2. Knowledge Transfer Initiatives**

	Status
Increase numbers participating in ePM herd recording and target farms with specific issues and link them to research projects	ePM PigSys herd recording >100 farms (80,000 sows) >70 farms in research projects
Develop regional Discussion Groups	7 Discussion Groups (West Cork, Moorepark, Nenagh, Kilkenny, Mullingar, Cavan, Donegal) 81 farmers, 55,630 sows
Annual Pig Research Dissemination Day	5 editions carried out
Further develop the monthly pig price monitor	Regular updates on pig price and feed ingredients and diets
Use of research findings to further develop feed formulations (best cost & low cost) for producers, incorporating the use of alternative ingredients	There is room for further improvement by implementing coordinated approach
Monthly electronic newsletters	Ongoing for the last 5 years
Upgrade pig section of Teagasc website	Regularly updated

**Table 3. Education Initiatives**

Develop a Pig Farm Managers course and continue existing Level 5/6 pig courses	Level 5 x 3 editions Level 6 x 1 edition Pig Farm managers
Appoint an Education Coordinator	Education and dissemination coordinator appointed in 2019
Publication of Pig Management Manual	Re-designed as videos and factsheets
Publication of Pig Careers Booklet	Paper and website

<b>Table 4. Research Initiatives</b>	
	<b>Status</b>
Establish guidelines on the optimum use of wet feed systems	Project WetFeed completed Project WetFeed 2 approved
Investigate nutrition and management practices to improve methods of gilt development	Project Optipig completed
Investigate use of feed enzymes to improve nutrient availability and digestibility	Project Pigzyme completed
Investigate link between respiratory disease, biosecurity, performance, welfare and antimicrobial use	Project PathSurvPig completed and looking for further funding
Investigate methods of reducing the risk of tail biting	Project Entail completed Project PigNoDock on-going
Terminal sire evaluation using different genetic terminal sources	Postponed due to changes in objectives
Develop an economic model for Irish pig production	Project TPPM Completed Projects TPPM2.0 ongoing

Some initiatives that were not originally part of the strategy document 2015-2020 have also been developed adapting the program to the needs of the sector. These additional initiatives are:

<b>Table 5. Additional Initiatives</b>	
	<b>Status</b>
Project AMURAP – Antimicrobial use and resistance in pig farms	Antimicrobial use part completed Antimicrobial resistance part ongoing
Project EUPIG – An EU thematic network sharing knowledge among 19 organizations in 13 different countries in the EU	Project EUPIG finishing in 2020
Project DIGIPIG – Developing better knowledge transfer tools for the Irish pig industry	Project DIGIPIG 1 completed
Project PLFPIGCARC – Development of computer-based systems to record ante-mortem and post-mortem lesions	Ongoing
Project WATERWORKS – Studying the use of water in Irish pig farms and best strategies to optimize use	Ongoing
Implementation of the LEAN methodology in the Irish pig industry	Pilot completed Phase 1 Completed Phase 2 ongoing



## Research impacts and highlights

When analysing the impact on pig farm profitability and sustainability the initiatives described previously:

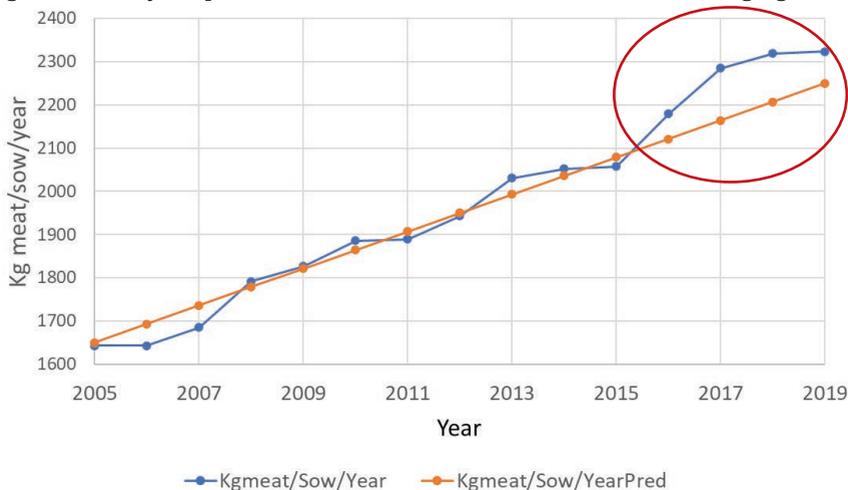
- Showed that using pelleted feed is worth €20/tonne more than meal.
- Showed that pelleted wet-dry system maximizes FCR vs wet-feed which maximizes intake and growth.
- Determined that maize can be used in diets up to 30%.
- Proved that GM pig feed is safe.
- Described the baseline for % of herds with APP, PRRS, Mhyo, Flu and quantified their effect on productive and economic performance.
- Showed that pig antibiotic usage is lower than assumed by DAFM (35% vs 66%).
- Proved that wood does not cause gum splinters and is safe to use against previous DAFM advice.
- Quantified the economic impact for farmers of antimicrobial reduction, respiratory disease and different adaptations to regulation.
- Showed that a significant part of the feed cost difference between Ireland and other countries is due to feed credit.
- Showed improved growth performance resulting from actions improving welfare (*free lactation crates, intact litters*).



## The value of the Pig Levy 2015-2020

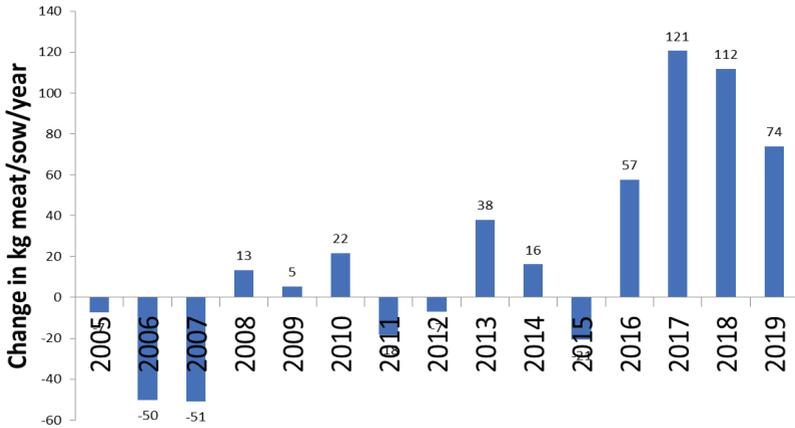
The economic value of the levy for Irish pig farmers is difficult to measure. However, the value of the improvement made by the Irish pig sector may be easier to quantify. The approach taken in this document was to compare the expected performance of the Irish pig herd from 2015 to 2019 with its actual performance during the same period of time. The expected performance for 2015-2019 was calculated using data from the ePM available for the last 15 years.

The total kg of meat produced per sow per year (*kg meat/sow/year*) was used as an indicator of the productivity of the pig herd. The expected and actual kg meat/sow/year produced since 2005 are shown in the following figure:



**Figure 1.** Actual (blue) and predicted (orange) kg of meat produced per sow per year during the last 15 years (source: Teagasc database).

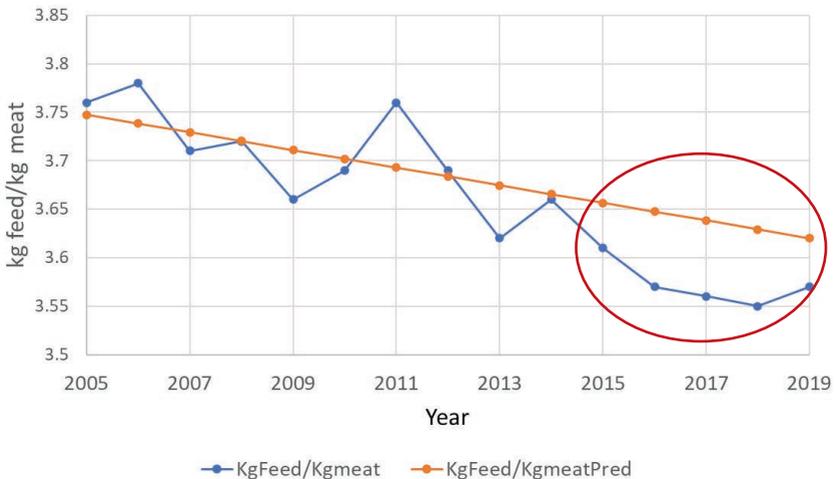
The expected average for 2019 was 2,250 kg of pig meat per sow per year. The actual amount produced in 2019 was 2,324 kg of meat per sow per year. This represents an increase of 74 kg of meat per sow per year. This increase not only happened during the past year, but it has been consistent since 2016. The average increase of meat per sow per year between 2015 and 2019 was 69kg. This difference for every year since 2005 is shown in the next figure:



**Figure 2.** Variation on the kg of meat produced per sow per year (*Actual - Predicted*) during the last 15 years. Values higher than 0 indicate that the actual production was higher than predicted (*source: Teagasc database*).

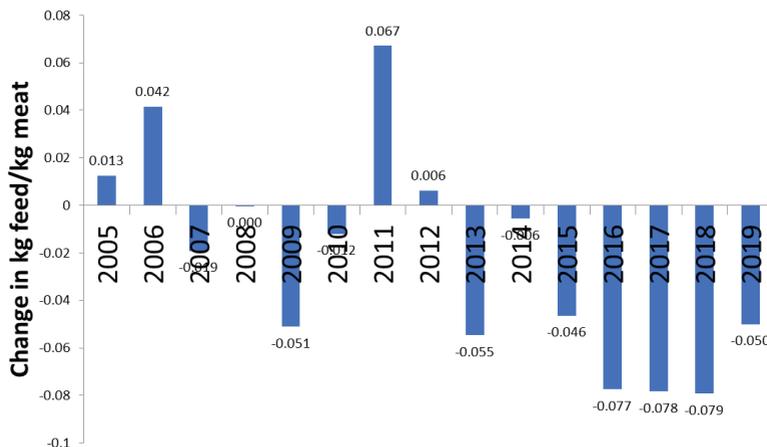
The different factors affecting performance have been analysed and this increase in meat produced per sow per year is not related to any single factor like the increase in sale weight or new genetics with high prolificity. This increase is the result of small improvements in different areas probably as a result of the efforts of all of those involved in the Irish pig sector.

The total kg of feed needed to produce a kg of meat (*kg feed/kg meat*) was used as an indicator of feed efficiency of the herd. The expected and actual *kg feed/kg meat* produced since 2005 are shown in the following figure:



**Figure 3.** Actual (*blue*) and predicted (*orange*) kg of feed needed to produce a kg of meat during the last 15 years (*source: Teagasc database*).

The expected average for 2019 was 3.62 kg feed/kg meat. The actual amount used by those farms in 2019 was 3.57 kg feed/kg meat. This represents a decrease of 50g (1.4%) per kg of meat produced. This improvement in conversion has been consistent since 2016. The average decrease for the period between 2015-2019 was 66g. This difference for every year since 2005 is shown in the next figure:



**Figure 4.** Variation on the kg of feed used to produce a kg of meat (*Actual – Predicted*) during the last 15 years. Values lower than 0 indicate a that the efficiency was better than predicted (*source: Teagasc database*).

The economic value of this improvement of productive performance in the Irish pig sector beyond predictions has been calculated based on these two indicators (*kg meat/sow/year* and *kg feed/kg meat produced*) and assuming different prices (€1.50, €1.60, €1.70, €1.80 and €1.90 per kg carcass) for a 650 sow farm as shown in Table 6.

Based on an average productivity of 27 pigs sold per sow per year this farm would be producing 17,550 pigs per year, sold at 112kg (86kg of dead weight). The cost of the levy for such farm would be €1,755 per year and the improvements in productivity for the period 2015-2019 would be:

Fixed saving due to improvements on feed efficiency (66g/kg meat = 2cts/kg meat) → €29,884/year

Variable savings due to increase in productivity (69kgmeat/sow/year) at €1.70/kg → €8,970/year

The total savings for the farmer varies with pig meat price and thus the benefits due to increased production depend on the price. However, those savings due to improved feed efficiency would be constants no matter what the price is.

**Table 6: Cost benefit of the levy for a 650 farrow-to-finish farm assuming different prices (€1.50, €1.60, €1.70, €1.80 and €1.90 per kg carcass).**

Pig price c/kg	150	160	170	180	190
Sow herd size	650	650	650	650	650
Pigs/sow/yr	27	27	27	27	27
Number pigs sold	17550	17550	17550	17550	17550
Sale wt/pig kg	112	112	112	112	112
Dead wt/pig kg	86	86	86	86	86
Kg meat sold	1509300	1509300	1509300	1509300	1509300
Cash Profit c/kg	0	10	20	30	40
Current Profit/Pig	€0.00	€8.60	€17.20	€25.80	€34.40
Est. Profit /Year	€0	€150,930	€301,860	€452,790	€603,720
<b>COST</b>					
At current 10c/pig	€1,755	€1,755	€1,755	€1,755	€1,755
Levy as % of est. profit		1.16%	0.58%	0.39%	0.29%
<b>BENEFIT</b>					
Improved production 69kg/sow/year	€0	€4,485	€8,970	€13,455	€17,940
Savings on feed, 2 c/kg	€29,884	€29,884	€29,884	€29,884	€29,884

The cost benefit for the 650-sow farm in terms of the levy for the last 5 years (using actual prices 2015-2019) would be:

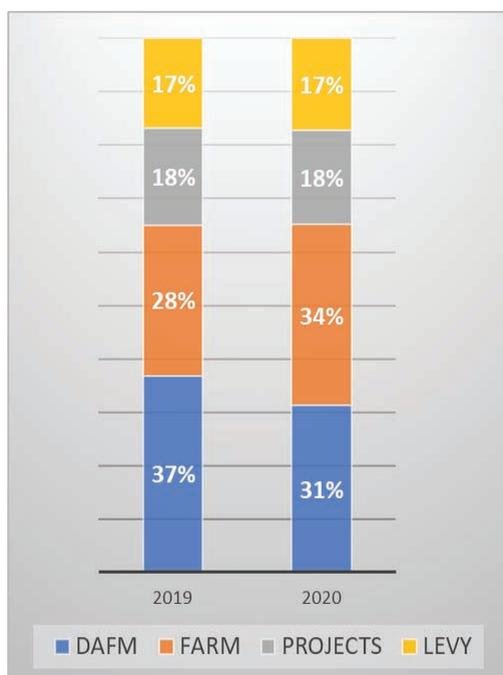
Saving on feed efficiency 2015 to 2019	€139,290
Benefits from improved production based on prices 2015 to 2019	€7,272

The benefit due to improved production is limited in the example because prices in the last 5 years were quite low. This benefit grows substantially when pig prices increase. The average prices in the next 5 years are expected to be above those for 2015-2019. Thus, the benefit obtained from an increased productivity could be similar to the benefit from the improvement on feed efficiency. Based on these values the return on investment for farmers with the levy would be around €17 to €1.

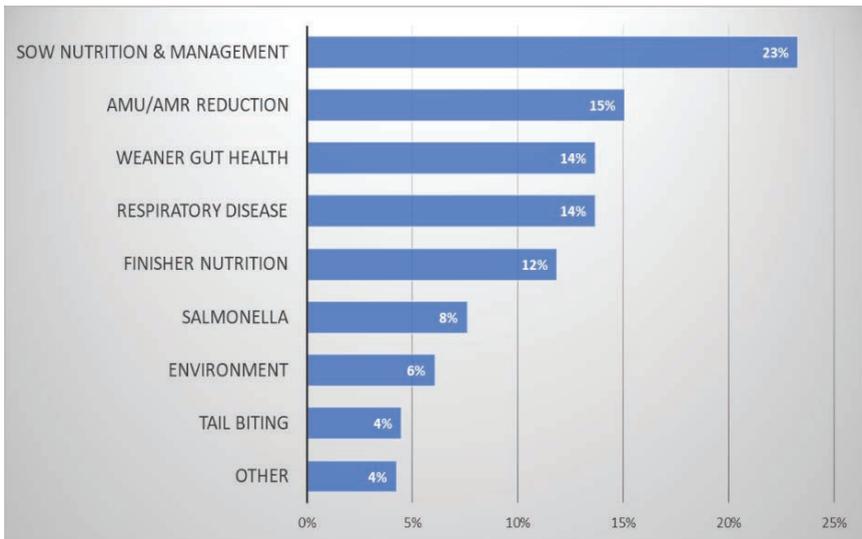


## Improving the value of the Pig Levy in 2021-2026

When thinking about the future strategy for the 2021-2026 period, it is important to consider the investment made in the last 5 years. The analysis of the previous levy will allow us to invest in the most critical areas to maximize future results with limited resources. The sources of financial support available to the Teagasc Pig Development Department currently are DAFM sanction, the income from the Teagasc Pig Research Facility, the external research grant including national and EU, and the contributions from the levy. The figures below show the percentage of economic support from each source and the use of the resources for the different areas of research in the period 2015-2020.



**Figure 5.** Distribution of the income of the Teagasc Pig Development Department in the last 2 years by source.



**Figure 6.** Percentage of the research funding dedicated to each of the main areas of research between 2015-2020.

## Feedback

Your feedback as part of the Joint Programme is valuable in ensuring the Teagasc Pig Development Department deliver the best results. Please do not hesitate to contact us if you would like more information on any of the topics included in this booklet or if you have any comments on the contents.



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