AN COIMISIÚN UM ACHOMHAIRC CHÁNACH
TAX APPEALS COMMISSION

162TACD2023

Between

[redacted]

and

**REVENUE COMMISSIONERS**

**Respondent**

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**Determination**

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**Introduction**

1. This is an appeal to the Tax Appeals Commission ("the Commission") by [redacted] ("the Appellant") against a notice of amended assessment to corporation tax dated 24 November 2020, raised by the Revenue Commissioners ("the Respondent") for the tax year 2017, arising from the refusal of research and development ("R&D") credits in the total amount of €42,647.

2. The appeal proceeded by way of an oral hearing on 11, 12 and 13 September 2023.

**Background**

3. The Appellant is engaged in the breeding of [redacted] its CT1 form for 2017, it claimed R&D credits for certain research projects carried out by it. These projects included the following:

| Project title | Description | Amount of credits claimed |
|---|---|---|

| | | |
|---|---|---|
| Project A | Nutritional trials | €25,365 |
| Project B | Semen extenders | €7,555 |
| Project C | Genotype development | €9,727 |

4. The Respondent refused the claimed R&D credits for Projects A, B and C, on the grounds that the projects did not satisfy the requirements of section 766 of the Taxes Consolidation Act 1997 as amended ("TCA 1997"). It raised an amended notice of assessment to corporation tax in the total amount of €133,929 on 24 November 2020. On 18 December 2020, the Appellant appealed against the amended notice of assessment.

5. The appeal proceeded by way of an oral hearing on 11, 12 and 13 September 2023. At the commencement of the hearing, the Commissioner noted that while the notice of appeal submitted by the Appellant stated that the quantum under appeal was the same amount as stated on the amended notice of assessment (i.e. €133,929), it appeared on the basis of the Appellant's written submissions that the total amount at issue was the sum of the credits claimed for Projects A, B and C, i.e. €42,647 (25365 + 7555 + 9727). The solicitor for the Appellant confirmed that this was the case, and therefore the Commissioner is satisfied that the total quantum is €42,647.

6. Following a request from the Commissioner during the hearing, the Appellant subsequently confirmed to the Commission that the parties agreed that the quantum under appeal in respect of Project A could be further broken down as follows[1]: Trial 1 - €10,232; Trial 2 - €3,780; Trial 3 - €4,402; Trial 4 - €6,951.

**Legislation and Guidelines**

7. Section 766(1)(a) of the TCA 1997 states inter alia that

> "'*research and development activities' means systematic, investigative or experimental activities in a field of science or technology, being one or more of the following –*

[1] Figures have been rounded to the nearest euro.

*(i) basic research, namely, experimental or theoretical work undertaken primarily to acquire new scientific or technical knowledge without a specific practical application in view,*

*(ii) applied research, namely, work undertaken in order to gain scientific or technical knowledge and directed towards a specific practical application, or*

*(iii) experimental development, namely, work undertaken which draws on scientific or technical knowledge or practical experience for the purpose of achieving technological advancement and which is directed at producing new, or improving existing, materials, products, devices, processes, systems or services including incremental improvements thereto:*

*but activities will not be research and development activities unless they -*

*(I) seek to achieve scientific or technological advancement, and*

*(II) involve the resolution of scientific or technological uncertainty*;"

8. The Respondent's "Research & Development Tax Credit Guidelines (Updated April 2015)" ("R&D Guidelines") state inter alia that:

"*2.1 Basic requirements for qualification*

*[…]*

*Qualifying activities must satisfy <u>all</u> of the following conditions. They must—*

1. *be systematic, investigative or experimental activities;*
2. *be in a field of science or technology;*
3. *involve one or more of the following categories of R&D—*
    a. *basic research,*
    b. *applied research, or*
    c. *experimental development*

*In addition, they must*

4. *seek to achieve scientific or technological advancement; and*
5. *involve the resolution of scientific or technological uncertainty.*

*[…]*

*3.4 Scientific or Technological Advancement*

*An advance in science or technology means an advance in the overall knowledge or capability in the field of science or technology (not an advance in the company's own state of knowledge or capability alone).*

*The test relates to knowledge or capability reasonably available to the company or a competent professional working in the field. Where knowledge of an advance in science or technology is not reasonably available, e.g. where it has not been published; is not in the public domain; or it is a trade secret of a competitor, companies may not be disqualified from claiming the credit where they undertake activities seeking to independently achieve the same scientific or technological advancement.*

*Reasonably available scientific or technical knowledge or experience includes information that is reasonably available to a company from both internal and external sources.*

*A scientific or technological uncertainty may be addressed by one company, or a number of companies may be working to resolve the same scientific or technological uncertainty at the same time.*

*If the solution to a scientific or technological uncertainty is reasonably available to a competent professional working in the field, lack of knowledge by a company due to a lack of diligence in seeking that solution or lack of appropriate expertise within the company does not constitute scientific or technological uncertainty.*

*3.5 Scientific or Technological Uncertainty*

*This arises in two situations, viz.*

a. *Uncertainty as to whether a particular goal can be achieved, or*

b. *Uncertainty (from a scientific or technological perspective) in relation to alternative methods that will meet desired specifications such as cost, reliability or reproducibility.*

*If, on the basis of reasonably available scientific or technological knowledge or experience, such technological or scientific uncertainty exists, R&D activity would aim to remove that uncertainty through systematic, investigative or experimental activity.*

*Uncertainty as to whether new materials, products, devices, processes, systems or services will be commercially viable is not scientific or technological uncertainty. In commercial settings, however, a reasonable cost target is always an objective, and*

*attempting to achieve a particular cost target can require the resolution of a scientific or technological uncertainty. Cost targets may require that scientifically or technologically uncertain alternative approaches, configurations etc. have to be attempted although more costly alternatives exist. A scientific or technological advance will always involve the resolution of uncertainty.*

***3.6 New materials / products / systems***

*Systematic, experimental or investigative activities directed at developing new or improved materials, products, devices, processes or services may qualify for the tax credit provided the activities seek to achieve the goals set out above. However, a process, material, device, product, service or system does not become an advance in science or technology simply because science or technology is used in its creation.*

*Work which uses science or technology but which does not advance scientific or technological capability or knowledge as a whole is not an advance in science or technology. Normal technology transfer or making improvements to materials, products devices, processes, systems or services through the purchase of rights or licence; or through the application of known principles or knowledge would not represent scientific or technological advancement. Neither does solving technical problems or trouble-shooting using generally available scientific or technological knowledge or experience meet this test. In addition, work in the development of a new or improved product will not, of itself, constitute R&D activities. The work may, for example, entail the resolution of extensive design issues but may not involve a scientific advancement…*" (emphasis in original)

9. The OECD's "Frascati Manual 2015 – Guidelines for Collecting and Reporting Data on Research and Experimental Development" ("Frascati Manual") states, at heading 2.4 "*The five criteria for identifying R&D*", that:

"*2.13 For an activity to be classified as an R&D activity, five core criteria have to be jointly satisfied. A set of examples, which is by no means exhaustive, is used to illustrate how the five criteria can be effectively applied to identify R&D activities as well as specific R&D projects.*

*To be aimed at new findings (novel)*

*2.14 New knowledge is an expected objective of an R&D project, but it has to be adapted to different contexts. For example, research projects in universities are*

*expected to pursue entirely new advancements in knowledge, and the same can be said for projects designed and managed by research institutes.*

*2.15 In the Business enterprise sector…the potential novelty of R&D projects has to be assessed by comparison with the existing stock of knowledge in the industry. The R&D activity within the project must result in findings that are new to the business and not already in use in the industry. Excluded from R&D are activities undertaken to copy, imitate or reverse engineer as a means of gaining knowledge, as this knowledge is not novel.*

*2.16 Novelty could result from a project to reproduce an existing result that finds potential discrepancies. An experimental development project aimed at creating knowledge in support of the development of new concepts and ideas related to the design of new products or processes should be included in R&D. As R&D is the formal creation of knowledge, including knowledge embodied in products and processes, the measurement focus is on the new knowledge, not on the new or significantly improved products or processes resulting from the application of the knowledge…*

*To be based on original, not obvious, concepts and hypotheses (creative)*

*2.17 An R&D project must have as an objective new concepts or ideas that improve on existing knowledge. This excludes from R&D any routine change to products or processes and, therefore, a human input is inherent to creativity in R&D. As a result, an R&D project requires the contribution of a researcher…*

*To be uncertain about the final outcome (uncertain)*

*2.18 R&D involves uncertainty, which has multiple dimensions. At the outset of an R&D project, the kind of outcome and the cost (including time allocation) cannot be precisely determined relative to the goals. In the case of basic research, which is aimed at extending the boundaries of formal knowledge, there is a broad recognition of the possibility of not achieving the intended results. For example, a research project may succeed in eliminating a number of competing hypotheses, but not all of them. For R&D in general, there is uncertainty about the costs, or time, needed to achieve the expected results, as well as about whether its objectives can be achieved to any degree at all…*

*To be planned and budgeted (systematic)*

*2.19 R&D is a formal activity that is performed systematically. In this context "systematic" means that the R&D is conducted in a planned way, with records kept of*

*both the process followed and the outcome. To verify this, the purpose of the R&D project and the sources of funding for the R&D performed should be identified…*

*To lead to results that could be possibly reproduced (transferable and/or reproducible)*

*2.20 An R&D project should result in the potential for the transfer of the new knowledge, ensuring its use and allowing other researchers to reproduce the results as part of their own R&D activities. This includes R&D that has negative results, in the case that an initial hypothesis fails to be confirmed or a product cannot be developed as originally intended. As the purpose of R&D is to increase of the existing stock of knowledge, the results cannot remain tacit (i.e. remain solely in the minds of the researchers), as they, and the associated knowledge, would be at risk of being lost. The codification of knowledge and its dissemination is part of the usual practice in universities and research institutes, although there may be restrictions for knowledge arising through contract work or as part of a collaborative undertaking. In a business environment, the results will be protected by secrecy or other means of intellectual property protection, but it is expected that the process and the results will be recorded for use by other researchers in the business*."

**Evidence**

[redacted]

10. [redacted] stated that he was the Appellant's R&D coordinator. He stated that the Appellant carried out research in-house. The Appellant was a [redacted] company [redacted]

11. The witness gave evidence of the R&D projects under appeal. Project A was nutritional trials. This project was made up of two parts, with two trials in each part; therefore there were four trials in total in Project A. The first part concerned the diet of growing [redacted] Trial 1 addressed the effect of feeding [redacted] after they were weaned. [redacted] and the Appellant sought to increase the palatability of feed so that the [redacted] would eat more food. The trial ran from April to December 2017, and involved [redacted]. The trial compared [redacted] at 2.5% to a control diet with no [redacted] The witness stated that Appellant had been unable find modern, up-to-date research on the effects of [redacted] in the diet. The conclusion of the trial was that mortality improved (i.e. less [redacted] died) and there was better growth performance.

12. Trial 2 concerned [redacted], a medium-chain fatty acid, which was fed to [redacted] during the [redacted]). The Appellant used the [redacted] system to

measure the intake and effects of the diet. [redacted]. The purpose was to increase the efficiency of [redacted] diets.

13. The second part of Project A looked at the diet of lactating [redacted] Trial 3 involved [redacted] an antioxidant with vitamin E. The Appellant measured [redacted] performance to ascertain the impact of the diet. [redacted]. Trial 4 involved [redacted], which was a blend of [redacted]. The purpose of feeding this additive to the [redacted] was to clean the [redacted] diet, which would lead to improved [redacted] health. This trial involved [redacted] The research led to the conclusions that there was no clear effect from [redacted] but that the [redacted] led to an increase in [redacted] performance. The results of Project A were shared with the Appellant's client base.

14. Project B looked at semen extenders. Semen was collected from [redacted] approximately two times in three weeks. A [redacted] could give [redacted] of semen in an ejaculate, containing approximately [redacted] billion cells. A semen extender could then be used to increase the volume of semen to [redacted] litres. The extender improved the longevity of the semen (up to 9/10 days) and also provided energy to ensure good motility. The trial looked at motility and morphology, and the effectiveness of extenders. The witness stated that prior to carrying out the research the Appellant could not find anything that was up-to-date on the effectiveness of extenders. The Appellant compared the following extenders: [redacted]

    The objective of the research was to maximise the performance of the semen cells. The research was done in-house and the results were not published.

15. Project C looked at genotype development, i.e. the development and advancement of the Appellant's genetic pool. The Appellant used BLUP (Best Linear Unbiased Predictor), a computer programme which aimed to create an economic value for a [redacted] The research looked at the input into the BLUP by reference to feed intake and the measurement of [redacted]. The outcome of the research was shared internally and with the Appellant's clients.

16. On cross examination, the witness stated that, in respect of Project A, the Appellant knew the proportion of active ingredient involved in Trial 1 ([redacted] but, following questioning, accepted that the Appellant did not know the proportions involved for Trials 2, 3 and 4. He said it was not uncommon for research trials to take place where the breakdown of the composition of the product was unknown. Regarding Project B, he stated that the focus of the research was sperm motility, but that morphology was also looked at. Regarding Project C, he stated that the research showed that the [redacted] was not

feed efficient. On re-examination, in respect of Project A, he stated that the Appellant was looking at the main component for each ingredient.

[redacted]

17. [redacted] was an expert witness retained on behalf of the Appellant. He gave evidence of his qualifications, including a Masters in animal physiology and reproduction, and a PhD, as well as a [redacted]

18. The witness had prepared a report in support of the Appellant's claim for R&D credits. He stated that, when assessing the claim, he wanted to see "*did this research make sense…was there an objective/was there a hypothesis... And that was clear; it was very, very clear.*" He stated that the research had significant "*power*", i.e. it involved a large number of animals, which increased certainty of results.

19. Regarding Project A, Trial 1 ([redacted] the witness stated that the research demonstrated economic, social and environmental sustainability. He stated that research had been carried out [redacted] in the 1970s[2], which had no relevance to the research being carried out by the Appellant, because [redacted] levels were different. Other research had been carried out in [redacted] but this was not comparable to Ireland as the [redacted] diet was very different. He stated that he believed there were two reasons the Appellant sought to use [redacted] in the [redacted] diet; firstly to replace [redacted] and secondly to increase intake post-weaning. He stated that he asked himself, "*did it make sense? And very, very clearly, what was being done here did make a lot of sense.*"

20. The rest of the trials in Project A were looking at alternatives to antibiotics, which had been banned in feed since 2022. He stated that it was necessary to find such alternatives. He stated that he was not concerned about "*whether there's 5% of* [redacted] *or 15% of* [redacted] *in there. But what I want to know is are they medium-chain fatty acids, short-chain fatty acids, long-chain fatty acids or Omega 3 fatty acids.*"

21. He stated that he could not comment on the quality of the work carried out by the Appellant because he was not present to see it. [redacted] and he knew that the Appellant had very good facilities. He said he

[2] [redacted]

considered the "*work around the* [redacted] to be particularly novel, because the search for alternatives to antibiotics was so important: "*But if you go look now, a lot of them experiments are looking at feeding the* [redacted] *and the effect it has on the subsequent offspring.*"

22. He stated that the research benefitted the producers. The Appellant, like all breeding companies, had a diet handbook for its breeds, which was available. Trial 4 ([redacted]) looked at [redacted] and the hypothesis was clear that it would reduce stillborn [redacted] He stated that "*you'd love to know*" the precise composition of the products, "*but once I know the level of medium-chain fatty acids that's going to be in there and there's nothing else in there, I'm happy with that.*" He stated that the composition of the products was not in the public domain and that he had done research where he did not know the exact composition: "*It stops me from publishing it in Nature, you know, but I get it into some other paper, you know. But does it undermine me? It doesn't undermine."* He stated that the major reason he was satisfied with the Appellant's research projects was that "*There was very, very clear hypotheses.*"

23. Regarding Project B, he stated that it was necessary for breeders such as the Appellant to improve the extenders used by them all the time: "*So you've got to be ahead of the posse. So that's where I saw that as being novel and really and truly reducing the uncertainty*." He stated that there was not published work in the area to the same degree.

24. Regarding Project C, he stated that, as a breeding company, the Appellant had to be doing that sort of research: "*This is their bread and butter*." He stated that if the research was not carried out, the breeding value would not have improved since the 1970s. He stated that to claim there was no interaction between genotype and nutrition did not make sense. He stated that it was not possible to draw conclusions from the research paper by [redacted] cited by the Respondent's expert in his report.

25. In response to the contention of the Respondent that the Appellant was engaged in routine product evaluation, he stated that there was no comparable research into [redacted] The research from [redacted] involved a totally different diet, and if fed to Irish [redacted] would kill 20% of them. The witness was dismissive of a Greek article from [redacted] referred to by the Respondent's expert[5]. Regarding Project B, he stated that the Appellant had "*to*

[4] [redacted]

*check that out…maybe it is routine, but, you know, you are clearly cutting down on that, basically, uncertainty*."

26. On cross examination, it was put to the witness that the Respondent found it surprising that it only learned of the previous connection between him and [redacted] when he gave his evidence in chief. He replied that, given the size of Ireland and the nature of the work he was involved in, it was not surprising that [redacted] He acknowledged that there was no declaration of independence in his report, but stated that he was totally independent.

27. He stated that he considered Project A to be hypothesis driven, but that Project C was not. He believed that improving the genetic performance of the Appellant's [redacted] was advancing the state of the art. He stated that his concern was whether the work "*stood up*", i.e. "*does it make sense?"* He was not concerned with the results of the research.

28. He was asked how it was possible to repeat research when the Appellant did not know the precise composition of the products being tested: "*Yeah, good point, yeah, yeah. But, as I said, what the guys were trying to do was not look at one product versus another. What they were looking at, basically, was what was the influence of medium-chain fatty acids, short-chain fatty acids and so on on health and performance.*" He stated that [redacted] diets were formulated on the base of ideal protein, and it did not really make a difference what the source was.

29. Regarding the Greek paper relied upon by [redacted], he stated that if it was a very good paper, it would not have been published in a Greek journal but in another journal that had a "*high impact factor*".

30. He agreed that the work carried out on diet and genotype development by the Appellant was only of value to its own gene pool:

    "*Q. And is what* [redacted] *does of any value to anybody else?*

    *A. Very valuable.* [redacted]

    *Q. But just for their own gene pool, effectively?*

    *A. Just for their own gene pool, yes*."

31. When asked why he had not said whether the research was applied research or experimental development, he stated that it was difficult to draw the line between them. He reiterated that he did not believe the American research was comparable with regards

to Trial 1 in Project A: "*The work in the States, for example, was done comparing three diets… One diet, there was 1.2%* [redacted] *and then a semi-complex diet and then a complex diet that had 1.7%* [redacted] *with* [redacted] *So, you're comparing a simple diet with 1.2% and you're comparing a diet that has 1.7%* [redacted] *You're comparing basically -- what are you comparing? Just* [redacted] *was added to one diet over the other diet. So it doesn't stand up*."

[redacted]

32. [redacted] was another expert retained by the Appellant. He stated that he had an MSc in animal breeding, and worked in the area of [redacted] breeding and genetics. He was an independent consultant in [redacted] genetics and [redacted] data. In his role he had had dealings with the Appellant.

33. He stated that the Appellant's gene pool was unique and it was not possible to generalise from results with other gene pools and assume that they would hold true with the Appellant's gene pool. He stated that nutritional requirements differed between gene pools, and it was necessary to come up with the optimum specification for genetics.

34. He stated that the [redacted] paper showed that efficient [redacted] would always be efficient irrespective of nutrition levels in the diet. However, this paper was based on [redacted] from the same breed, so the witness did not understand how the Respondent's expert had concluded that there were no interactions between breeds.

35. On cross examination, he stated that the [redacted] paper showed that within a genetic pool, ranking does not change based on nutritional regime. He agreed that any improvements to the Appellant's feeding regime would only benefit the Appellant's gene pool. He also stated that the results of the Appellant's research were not disseminated to other breeders. On re-examination, he stated that the results would be shared to the Appellant's customers.

[redacted]

36. [redacted] was retained by the Respondent to evaluate the Appellant's claim for R&D credits. He stated that his qualifications included an MSc in animal science. He had published papers on growth physiology in [redacted] He had work experience in animal feed and nutrition. Since [redacted] he has had his own company [redacted]. In this role, he has assisted clients to apply for R&D tax credits, both in the UK and in Ireland. He was appointed by the Respondent as a technical auditor for the purposes of R&D claim reviews.

37. He was referred to the Frascati Manual and stated that he understood the reference to "*the stock of knowledge*" at paragraph 2.5 to mean "*the state of the art. In other words, what is the latest technology in the specific area.*" He stated that he understood the five criteria set out at paragraph 2.6 in the Frascati Manual to mean that "*something that is novel for the company may not be eligible for R&D tax credits if it's not extending the state of the art.*" He stated that he considered "*routine activity*" to include "*the normal evaluation of new products that any commercial entity would carry out*."

38. He also stated that the work had to be capable of being repeated. In this regard, if the researcher did not know the amount of the active ingredients, there was a risk of inaccurate responses, and it was very hard to make verifiable claims as to the suitability of the product and test.

39. In his report, the witness stated that he did not believe that Projects A, B and C resolved technical uncertainties. He contended that Projects A and B constituted routine product evaluation. In respect of Project C, he stated that the [redacted] article showed that the ranking of animals for performance test traits and carcass composition and meat quality would not be dependent on diet or feeding regime, that good [redacted] would perform irrespective of the feeding regime and that there were no genotype/nutrition interactions. In response to [redacted] argument that it was not possible to extrapolate from [redacted] article to make findings across breeds, he stated that [redacted] would have drawn his conclusions based on his experience in many trials that had gone before.

40. Regarding Trial 1 in Project A, he agreed with [redacted] that the [redacted] research was old. However, he considered the [redacted] work to be a recent update, and he did not agree with [redacted] that the difference in diet between America and Europe was crucial. This was because [redacted] diets are formulated on the basis of nutritional requirements rather than specific ingredients. Regarding Trials 2, 3 and 4, he stated that it was not possible to establish novelty or transferability/reproducibility if you don't know what you are testing. He stated that the work carried out by the Appellant was "*very good work*" and was new but was not novel.

41. He stated that it was obvious that the Appellant should carry out the research set out in Project B. It made commercial sense for them to evaluate different semen extenders but it did not advance the state of the art, because nobody else had access to the Appellant's genetic pool.

42. Regarding Project C, he stated that this was "*very, very routine work. It's not work that can be repeated by anybody else. The traits that are put into BLUP tend to be of merit and the data is of merit to the breeding company only, the supplier of semen or its*

*customers. It's not work that can be specifically repeated by other breeding companies*." He stated that [redacted] breeding companies around the world would use BLUP with other techniques to improve their [redacted] strains.

43. On cross examination, the witness stated that he was on the Respondent's panel of experts in 2018 and 2019 but had not applied to be on the panel since. He stated that he assumed he was given the Respondent's Procedures Manual when he was appointed. He stated that he did some work in the early 2000s which involved [redacted] as academic partner. He agreed that he had consulted with [redacted] from 2004 to March 2023. He had also consulted with [redacted]

44. He stated that he did not have any engagement with the Appellant regarding the R&D claim following an audit visit. He stated that he did not issue any feedback on the Appellant's response to his draft report in 2020. He stated that he never asked the Appellant for the composition material regarding the relevant products that he had concerns about. He stated that he had never been given the proportion of active ingredients by such companies. He stated that he would not have claimed for an R&D credit if he was not provided with the precise composition of ingredients.

45. He accepted that his criticism of the Appellant for not identifying the composition of ingredients did not apply to [redacted] and therefore only applied to the proprietary products. He stated that the last time he formulated [redacted] diets was in the late 1980s, but that he was aware that diets were still formulated primarily on nutrient specifications. He agreed that the list of ingredients of [redacted] was publicly available, and he agreed that generally the largest proportion was listed first.

46. He accepted that, when updating his report, he failed to amend it to account for a resubmission made by the Appellant, and stated that this was an error. He stated that, when reviewing the Appellant's claim, he relied upon the Respondent's R&D Guidelines and the Frascati Manual, and that he consulted them at the very start of the assignment. He accepted that they were not referenced in the original version of his report. He accepted that Projects D and E, which were accepted by the Respondent for R&D tax credits and therefore not subject to appeal, also concerned the Appellant's gene pool. In response to questioning from the Commissioner, he accepted that there was an inconsistency between his findings on Project C and Projects D and E, and stated that, if he was writing his report again, "*I would not allow these experiments*."

**Submissions**

*Appellant*

47. In written submissions, the Appellant stated that it fundamentally disagreed with the conclusions of [redacted] that the projects did not satisfy the test for R&D credits. Regarding Project A, the Appellant stated that the investigation of dietary additives on evolving gene pools was innovative and the technical risk was how the advanced genetics responded through measurements of farm performance. This led to new knowledge which was not freely available in the scientific literature. The scientific papers referred to by [redacted] were dated and applied to genetic populations that did not have the post-weaning or reproductive performance of the current advanced gene pools.

48. Regarding Project B, the Appellant stated that testing semen extenders was innovative and had technical risk. The technical risk related to how the semen cells' motility, morphology and longevity performed when preserved in the various extenders. There were few studies which compared the preservation capacity of different extenders in the laboratory and the relation with actual field conditions. It was also not certain how [redacted] fertility performance responded when inseminated with semen preserved with various extenders. It was of the utmost importance that the Appellant undertook R&D work with semen extenders to alleviate technological uncertainties, thereby giving scientific or technological advancement to the company and the wider [redacted] industry, which in turn would add to the greater scientific knowledge base.

49. Regarding Project C, the R&D activities were required to ensure that genetic progress was achieved within a unique, specific gene pool. Innovative methods were used to measure the performance attributes leading to new knowledge with a view to specific commercial applications for the enhancement of genetic progress. The research carried out and the methods used were unique and not freely available in the literature, and therefore the research would add to the research knowledge base. Methods of measuring feed efficiency (conversion of feed intake to weight gain) across breeding companies and research institutions was not consistent. The Appellant sought to resolve this uncertainty.

50. In oral submissions, the solicitor for the Appellant stated that it was accepted by the Appellant that the burden of proof was on it. He also accepted that the Frascati Manual and the Respondent's R&D Guidelines could be relied upon by the Commissioner when determining whether the Appellant's projects amounted to R&D for tax purposes.

51. It was for the Commissioner to decide on the quality, content and reliability of the expert evidence provided at the hearing. However it was submitted that it was open to the

Commissioner to consider whether the Appellant had been treated fairly by the Respondent during the process, and whether it was reasonable that matters that [redacted] considered that the Appellant should address were not communicated by the Respondent to the Appellant.

52. Regarding the evidence, it was submitted that Trial 1 in Project A ([redacted] was separate and apart from the proprietary products. The question was: whether it was the product itself that was being tested or whether the research was aimed at investigating the interaction of the product with the Appellant's gene pool. The proprietary products were regulated, which provided for consistency so that there was the potential for other parties to carry out similar experiments.

53. Regarding the five-limbed test to be met, it seemed that the parties were in agreement that the Appellant met the first three limbs. The dispute was focused on limbs four and five. The Respondent had correctly set out the tests, but it was for the Commissioner to apply the facts to the law.

54. In the Appellant's written submissions, there were a number of references to additional experts that were not called to give evidence by the Appellant at the hearing, and it was accepted by the Appellant's solicitor that the Commissioner could not have regard to those references when formulating his findings and determination.

*Respondent*

55. In written submissions, the Respondent stated that the research projects did not seek to achieve scientific or technological advancement and/or did not involve the resolution of scientific or technological uncertainty, and therefore the Appellant was not entitled to the R&D credits sought. As the Appellant was seeking to obtain relief from the imposition of tax, it was incumbent on it to demonstrate that it fell within the relief; *Revenue Commissioners v Doorley* [1933] IR 750.

56. The Respondent referred to the requirement that the Appellant's activities come within the definition of R&D activities in section 766 of the TCA 1997 as the "Science Test". It stated that guidance on the application of the Science Test could be gleaned from the Canadian Tax Court case of *Northwest Hydraulic Consultants Ltd v The Queen* [1998] 3 CTC 2520, which considered the Canadian equivalent of section 766. In that case, the court stated at paragraph 16 that *"If the resolution of the problem is reasonably predictable using standard procedure or routine engineering there is no technological uncertainty as used in this context.*"

57. The principles to be considered when assessing expert evidence were set out in various cases, including *Donegal Investment Group plc v Danbywise* [2017] IESC 14 and *The Ikarian Reefer* [1993] 2 Lloyd's Rep 68. The Respondent's expert witness, [redacted] had concluded that Projects A, B and C did not satisfy the Science Test for the purposes of section 766. [redacted] considered the additional submissions of the Appellant following the issuance of his original report, but his opinion did not change.

58. In oral submissions, senior counsel for the Respondent submitted that the Appellant had failed to prove its case. It had not specified whether it believed it had carried out applied research or experimental development. It was open to the Commissioner to find that the Appellant's research was not systematic, given the issue about composition of ingredients, although it was acknowledged that both [redacted] had stated that they considered the research to be systematic.

59. The principal matters of difference between the parties were limbs 4 and 5 of the statutory test. The phrase "achieve scientific or technological advancement" meant the state of the art. All advancement was knowledge, but not all knowledge was advancement. The phrase "scientific or technological uncertainty" meant a novel method or process; in order to resolve scientific uncertainty, you had to do something different in a different way. The uncertainty involved was to whether the question could be answered at all.

60. Counsel referenced the Frascati Manual, the Respondent's R&D Guidelines, Canadian case law, guidance from HMRC in the United Kingdom as well as UK case law, and stated that while the different regimes were not identical, they were very consistent and resonated with each other in terms of what the requirements were. The Appellant appeared confused between sophisticated research activities that were carried on for commercial advancement, and the sort of R&D that qualified for tax credits. It was respectfully submitted that there had been a lack of engagement with the requirements of the statute.

61. It was explicit in both the Frascati Manual and *Northwest Hydraulic Consultants Ltd* that routine activity was excluded from R&D, and that was one of the Respondent's principal objections to the projects under appeal. If it is known that the research will provide a 'yes' or 'no' answer, that was suggestive of routine activity. Additionally, it was a requirement that the research be reproducible, and counsel submitted that this was fatal to Tests 2, 3 and 4 in Project A.

62. Counsel submitted that the Appellant had tested products to ascertain whether they were commercially viable for it, which was not sufficient basis for saying that an R&D credit

should apply. The pursuit of commercial profit or the undertaking of commercial endeavour did not equate, of itself, to meeting the requirements for R&D credit relief.

63. It was not necessary for the Commissioner to prefer one side's expert evidence over the other's, because the Appellant had simply failed to meet the requirements of the statute. It was very difficult to see what facts and assumptions the Appellant's experts' opinions were based on. While there were a lot of documents submitted by the Appellant, many of them were not opened during evidence.

64. Regarding the oral evidence, the Appellant did not know the composition of the ingredients in Trials 2, 3 and 4 of Project A, and therefore could not have known what ingredients were giving what response. No argument at all was made that the Appellant knew what was in the various semen extenders; it was just looking at the results. [redacted] said that the essential question for him was "*Did the work make sense?*", which was an impossibly vague statement for the Commissioner to act upon to find that there was an R&D credit available.

65. [redacted] had not disagreed that other large [redacted] breeders did similar testing. He said he did similar research in 2010 regarding interventions with the [redacted] for [redacted] health. He described Project C as bread and butter work, which was another way of saying routine engineering, and accepted on cross examination that it was not hypothesis-driven. He also agreed that Project B was routine work.

66. [redacted] had given somewhat contradictory evidence on what the [redacted] article meant. He conceded that the information gained by the Appellant in its research would not be of use to anyone else. His written report was very short and lacking in specifics. There was no evidence that the Appellant's research was unique or novel.

67. [redacted] had said that he did not see a difference significant enough between the EU and US diets to disturb his findings that the research on [redacted] had previously been carried out. He also stated that Tests 2, 3 and 4 were not reproducible, and Projects B and C were routine work. No submission was made, but there seemed to be an insinuation during cross-examination of [redacted] that he was not suitable or was conflicted in some way. The Appellant had had a chance to object to [redacted] when he was appointed by the Respondent but had not done so. There was also a submission that there was a fair procedures point at issue; however it was trite law that the Commissioner could not deal with any sort of complaint. In any event, no particularised complaint had been made.

**Material Facts**

68. Having read the documentation submitted, and having listened to the oral evidence, including expert evidence, and submissions at the hearing, the Commissioner makes the following findings of material fact:

    68.1. The Appellant is a company engaged in the business of [redacted] breeding and has its own genetic pool of [redacted]

    68.2. In its CT1 form for 2017, the Appellant claimed R&D credits for certain research projects carried out by it. These included:

    Project A – An investigation of the effects of inclusion of a selection of feed additives in [redacted] diets on the growth performance, health status vigour and condition of [redacted]

    Project B – An evaluation of different semen extenders on sperm cell quality during short term storage at 17°C;

    Project C – Evaluating the phenotypic performance for the economically important traits and developing genetically advanced breeding [redacted] to underpin the [redacted] Genetic Portfolio.

    Project A was subdivided into four trials: 1 – [redacted] 2 – [redacted], 3 – [redacted], 4 – [redacted]

    68.3. The Respondent refused R&D credits for Projects A, B and C.

    68.4. The research projects were carried out for the Appellant's commercial benefit and the results were shared within the Appellant and with its customers, but not disseminated more widely. Due to the specific gene pool of [redacted] developed and owned by the Appellant, the findings of its research were not of any direct significance beyond its own [redacted]

    68.5. Projects A, B and C did not seek to achieve scientific or technological advancement but instead advanced the Appellant's own state of knowledge regarding its gene pool by means of routine activity.

    68.6. For Projects A, B and C, the Appellant was engaged in routine engineering rather than the resolution of scientific or technological uncertainty. The uncertainties that existed, such as they were, were capable of being resolved by competent professionals working in the field of [redacted] breeding and [redacted] husbandry.

68.7. It was inherent in Projects A and B that the tests would prove or disprove the hypotheses being tested. There was no uncertainty involved in Project C at all.

68.8. Projects A and B involved standard product assessment to ascertain commercial viability. Project C could be described as in the nature of a design objective.

68.9. The Appellant did not know the composition of the active ingredients involved in Tests 2, 3 and 4 in Project A.

**Analysis**

69. The burden of proof in this appeal rests on the Appellant, who must show that the Respondent's amended notice of assessment is incorrect and that it was entitled to R&D credits for Projects A, B and C. In the High Court case of *Menolly Homes Ltd v. Appeal Commissioners* [2010] IEHC 49, Charleton J stated at paragraph 22 that "*The burden of proof in this appeal process is, as in all taxation appeals, on the taxpayer. This is not a plenary civil hearing. It is an enquiry by the Appeal Commissioners as to whether the taxpayer has shown that the relevant tax is not payable.*"

70. The definition of what constitutes R&D activities is set out in section 766 of the TCA 1997 and quoted at paragraph 6 above. The Respondent's R&D Guidelines state that it is necessary for qualifying activities to satisfy all five of the following conditions:

1. systematic, investigative or experimental activities;

2. in a field of science or technology;

3. involves one or more of the following categories of R&D—

- basic research,
- applied research, or
- experimental development;

4. seeks to achieve scientific or technological advancement; and

5. involves the resolution of scientific or technological uncertainty.

71. The parties were in agreement that the Respondent's R&D Guidelines, as well as the Frascati Manual, could be relied upon by the Commissioner in assessing the Appellant's research activities, and in any event he is satisfied that the above five-limbed test is an accurate restatement of the requirements of section 766.

72. The burden rests on the Appellant to demonstrate that <u>each</u> of the above five limbs has been met by it in respect of each of the research projects under appeal. In his closing

submissions, counsel for the Respondent queried whether the projects, or at least some of them, could be classed as systematic, as the Appellant did not know the proportion of active agreements involved, and therefore those tests were not reproducible. He also noted that the Appellant had not clearly stated whether it believed the projects constituted applied research or experimental development. However, the Commissioner notes that the Frascati Manual differentiates between "systematic" and "transferable and/or reproducible" and the evidence of both [redacted] was that the Appellant's research was systematic. Additionally, the third limb of the statutory test involves "*one or more*" of (inter alia) applied research or experimental development, which the Commissioner considers supports [redacted] contention that it can be difficult to differentiate between them.

73. Consequently, the Commissioner will focus on the fourth and fifth limbs of the statutory test, which the parties agreed in closing submissions were the centre of the disagreement between them. For the reasons set out herein, the Commissioner agrees with the Respondent that the Appellant has failed to demonstrate that its research projects satisfied the fourth or fifth limbs of the statutory test.

*Scientific or technological advancement*

74. Paragraph 2.5 of the Frascati Manual states that R&D activities "*comprise creative and systematic work undertaken in order to increase the stock of knowledge…and to develop new applications of available knowledge.*" In his evidence, [redacted] stated that he understood that "*the stock of knowledge*" meant "*the state of the art*".

75. Paragraph 3.4 of the Respondent's R&D Guidelines states that "*An advance in science or technology means an advance in the overall knowledge or capability in the field of science or technology (not an advance in the company's own state of knowledge or capability alone)"* (emphasis in original).

76. This statement is supported by the judgment of the Canadian Tax Court in *Northwest Hydraulic Consultants Ltd v The Queen* [1998] 3 CTC 2520, which was concerned with the Canadian statutory definition of "scientific research and experimental development". At point 4 of paragraph 16, Bowman JTCC asked "*Did the process result in a technological advance, that is to say an advancement in the general understanding?*"

77. The Commissioner considers that there was insufficient evidence before him to enable him to conclude that any of Projects A, B or C resulted in an advancement of the general understanding, or the overall knowledge, in the field of [redacted] breeding or [redacted] husbandry. He accepts that the research was beneficial to the Appellant, and by extension to its

customers, but his understanding of the evidence, including [redacted] evidence, was that, due to the specific gene pool of [redacted] developed and owned by the Appellant, the findings from its research were not of any direct significance beyond its own [redacted] While [redacted], in his report, stated that Project A "*will definitely add to [the Appellant's] R&D and the scientific literature*", the Commissioner considers that no supporting evidence was provided to support the claim that the research, on any of the projects (and it is noted that the reference to the "scientific literature" was not repeated in his report in respect of Projects B or C) would lead to an advancement in the general understanding.

78. There was a dispute between the expert witnesses regarding whether the existing scientific literature was relevant to the experiments being carried out by the Appellant. Overall, the Commissioner considered that there was a lack of proper engagement by the expert witnesses retained by both sides with the arguments of the other, with a tendency in some instances to simply dismiss the citations relied upon by the 'opposing' witness (for example, [redacted] response to the Greek article by [redacted] and [redacted] response to [redacted] criticisms of his conclusions on the article by [redacted] However, the Commissioner considers that it is not necessary for him to decide whether the knowledge sought by the Appellant was reasonably available to it prior to carrying out the research projects, because he is satisfied that, even if it was not, the evidence before him failed to prove that the projects resulted in an advancement of the general understanding, rather than merely led to an advancement in the Appellant's own state of knowledge regarding its own gene pool.

79. Furthermore, one of the five criteria set out in the Frascati Manual is that R&D must be "*based on original, not obvious, concepts and hypotheses (creative)*". While the five criteria in the Frascati Manual do not exactly map onto the five-limbed test set out in section 766, the Commissioner considers that the requirement that research be creative is reflected in the fourth limb of section 766.

80. Paragraph 2.17 of the Frascati Manual states that "*An R&D project must have as an objective new concepts or ideas that improve on existing knowledge.*" The Commissioner considers that there was insufficient evidence put before him to conclude that the Appellant sought "*new concepts or ideas*" when carrying out its research projects. Rather, it seemed to the Commissioner that the projects involved "*routine change[s] to products or processes"* which are excluded from R&D. Indeed, [redacted] described Project C as the Appellant's "*bread and butter*" and acknowledged that Project B maybe was "*routine*". Regarding Project A, the Commissioner considers that there was no evidence

that would enable him to conclude that investigations into the inclusion of dietary additives to [redacted] feed was anything other than a routine change for a company such as the Appellant. This aspect will be considered further under the fifth limb of the statutory test.

81. Consequently, the Commissioner finds that, for each of Projects A, B and C, the research projects carried out by the Appellant did not seek to achieve scientific or technological advancement, but instead advanced the Appellant's own state of knowledge regarding its own gene pool of [redacted] by means of routine activity. Therefore, the Commissioner finds that none of Projects A, B or C satisfied the fourth limb of the test set out in section 766 of the TCA 1997.

*Scientific or technological uncertainty*

82. Paragraph 3.5 of the Respondent's R&D Guidelines states that scientific or technological uncertainty arises in two situations: either uncertainty as to whether a particular goal can be achieved, or uncertainty (from a scientific or technological perspective) in relation to alternative methods that will meet desired specifications such as cost, reliability or reproducibility. The paragraph goes on to state that, "*Uncertainty as to whether new materials, products, devices, processes, systems or services will be commercially viable is <u>not</u> scientific or technological uncertainty.*" (emphasis in original)

83. Paragraph 2.18 of the Frascati Manual states that, "*For R&D in general, there is uncertainty about the costs, or time, needed to achieve the expected results, as well as about whether its objectives can be achieved to any degree at all.*" The Respondent also referred to guidance from HMRC, in its "Corporate Intangibles Research and Development Manual, CIRD81900", which states at paragraph 14 that "*Uncertainties that can readily be resolved by a competent professional working in the field are not scientific or technological uncertainties.*"

84. In *Northwest Hydraulic Consultants Ltd*, the Canadian court stated at point 1 of paragraph 16, "*Implicit in the term 'technical risk or uncertainty' in this context is the requirement that it be a type of uncertainty that cannot be removed by routine engineering or standard procedures… If the resolution of the problem is reasonably predictable using standard procedure or routine engineering there is no technological uncertainty as used in this context… What is "routine engineering"?... Briefly it describes techniques, procedures and data that are generally accessible to competent professionals in the field*."

85. The Commissioner considers that the evidence before him clearly suggests that what the Appellant was engaged in can fairly be described as "routine engineering", rather than the resolution of scientific or technological uncertainty. The Commissioner's

understanding of Project A was that it involved providing four different feed supplements to ascertain their impact on [redacted] performance. Trial 1 concerned [redacted] Trial 2 concerned [redacted], Trial 3 concerned [redacted] and Trial 4 concerned [redacted]. In the case of all four tests, the Commissioner considers that the results would essentially be binary, in that the feed supplements would either have a beneficial impact or not (although, obviously, the extent of any beneficial impact could differ between different products). It therefore seems to the Commissioner that Project A could not meet the "uncertainty" test, which requires uncertainty as to whether its objectives could be achieved to any degree at all. It was inherent in the tests that they would prove or disprove the hypothesis being tested.

86. A similar finding is made in respect of Project B, which evaluated the performance of five different semen extenders on the Appellant's [redacted] semen. Again, it seems to the Commissioner that it was an inherent feature of the tests that a positive or negative result would be obtained, and therefore the hypothesis proved or disproved. Project C was slightly different, in that it was acknowledged by [redacted] that this project, which aimed to develop and improve the Appellant's genotype, was not hypothesis driven. It seems to the Commissioner that there was no uncertainty involved at all in this project. Measurements were taken from [redacted] which were entered into the Appellant's BLUP (Best Linear Unbiased Predictor) program to create an economic value. It certainly cannot be said about Project C that there was any uncertainty as to whether its objectives could be achieved at all.

87. The Commissioner considers that Projects A and B involved standard product assessment to ascertain their commercial viability, and therefore did not qualify for tax credits (R&D Guidelines, paragraph 3.5). Project C did not appear to involve any scientific or technological uncertainty at all, but could better be described as "*in the nature of a design objective*", as per the Tax Court of Canada in *Logix Data Products Inc v The Queen* 2021 TCC 36.

88. Furthermore, the Commissioner considers that there was no evidence before him that could lead him to conclude other than that the Appellant was engaged in "routine engineering" when implementing the three projects. It seems to the Commissioner that the uncertainties that existed, such as they were, were capable of being resolved by competent professionals working in the field of [redacted] breeding and [redacted] husbandry. That is not to denigrate the work carried out by the Appellant, which was acknowledged by both [redacted] to be of a high standard. However, even [redacted] acknowledged that Project B could be routine and that Project C was "*bread*

*and butter*" work for a company such as the Appellant. While [redacted] was highly complimentary of Project A in particular, the Commissioner considers that there was no evidence that the Appellant utilised techniques, procedures or data other than were generally accessible to competent professionals in the industry.

*Conclusion*

89. The Commissioner has found that Projects A, B and C did not seek to achieve scientific or technological advancement, and did not involve the resolution of scientific or technological uncertainty. Therefore, the projects did not satisfy the definition of "research and development activities" set out in section 766 of the TCA 1997, and consequently did not attract R&D credits.

90. Before concluding, the Commissioner will briefly address some of the other issues that arose during the hearing. It was ultimately not denied by the Appellant that it did not know the precise composition of the active ingredients involved in Tests 2, 3 and 4 of Project A, and as a result the Commissioner agrees with the submission of the Respondent that those tests did not meet the "reproducibility" criterion set out in the Frascati Manual.

91. In closing submissions, the solicitor for the Appellant contended that the manner in which the Respondent had dealt with the Appellant during the pre-appeal process was unfair, as it had not actively requested additional documentation or evidence from the Appellant that could have improved the Appellant's case. However, it is clear that the Commissioner does not have jurisdiction to consider the actions of the Respondent in its engagement with the Appellant, and is limited to considering whether the notice of amended assessment raised by the Respondent was correct; *Lee v Revenue Commissioners* [2021] IECA 18. In any event, even if he was entitled to consider the engagement between the parties, the Commissioner does not agree that there was anything before him that could enable him to find that the Respondent had treated the Appellant unfairly.

92. [redacted] accepted in evidence that there was an inconsistency between his decision to disallow Project C, and his approval of Project D and E, which also were concerned with the Appellant's gene pool, and he stated that, if he was writing his report again, he would not allow Projects D and E. It goes without saying that those projects are not the subject of the appeal, no evidence was heard in relation to them and no findings about them are being made. However, the Commissioner appreciates that the Appellant was frustrated by the inconsistency in the Respondent's approach to the projects. Nevertheless, the Commissioner can only make findings on the projects before him and based on the evidence heard, and for the reasons set out herein he is satisfied that Project C did not come within the scope of section 766.

93. Finally, the Commissioner considers that it is necessary for an appellant, in an appeal such as this one, to clearly and methodically demonstrate that each limb of the test under section 766 is satisfied, in order to meet the burden of proving that it is entitled to an R&D credit. However, in this instance, the Commissioner considers that there was a failure by the Appellant to clearly and properly address with evidence each limb of the test. Rather, the Appellant's evidence was overall quite general and "omnibus" in nature, and the Commissioner agrees with the submission of the Respondent that it failed to meet the burden upon it. In particular, and while not doubting his obvious and extensive expertise in the area, the Commissioner found that [redacted] evidence, that he based his opinion on whether the Appellant was entitled to R&D credits on the basis of whether or not its research "*stood up*" or "*made sense*", to be unhelpfully vague. The Commissioner would expect that expert evidence on section 766 would be focused on whether or not the research work satisfied each element of the five-limb test.

94. Having said that, the Commissioner does not doubt that the Appellant approached the matter in good faith, and carried out a large amount of preparatory work in advance of the appeal, and he appreciates that it will be disappointed with the outcome of the appeal. Nevertheless, for the reasons set out in this Determination, the Commissioner is satisfied that Projects A, B and C did not satisfy the definition of R&D activities in section 766 of the TCA 1997, and therefore the appeal is not upheld.

**Determination**

95. In the circumstances, and based on a review of the facts and a consideration of the submissions, material and evidence provided by both parties, the Commissioner is satisfied that the Respondent's notice of amended assessment to corporation tax, for the tax year 2017, arising from the refusal of R&D credits in the total amount of €42,647, is correct, and the notice of amended assessment stands.

96. This Appeal is determined in accordance with Part 40A of the TCA 1997 and in particular sections 949AK thereof. This determination contains full findings of fact and reasons for the determination, as required under section 949AJ(6) of the TCA 1997.

**Notification**

97. This determination complies with the notification requirements set out in section 949AJ of the TCA 1997, in particular section 949AJ(5) and section 949AJ(6) of the TCA 1997. For the avoidance of doubt, the parties are hereby notified of the determination under section 949AJ of the TCA 1997 and in particular the matters as required in section 949AJ(6) of the TCA 1997. This notification under section 949AJ of the TCA 1997 is being sent via

digital email communication **only** (unless the Appellant opted for postal communication and communicated that option to the Commission). The parties will not receive any other notification of this determination by any other methods of communication.

**Appeal**

98. Any party dissatisfied with the determination has a right of appeal on a point or points of law only within 42 days after the date of the notification of this determination in accordance with the provisions set out in section 949AP of the TCA 1997. The Commission has no discretion to accept any request to appeal the determination outside the statutory time limit.

Simon Noone
Appeal Commissioner
5th October 2023