**THE HIGH COURT**

**[2024] IEHC 52**

**[Record No. 2013 / 11412 P]**

**BETWEEN:-**

**JOHN DONNELLY AND SONS LTD**

**PLAINTIFF**

**AND**

**MICHAEL HOEY AND COUNTRY CREST FARMING LTD**

**DEFENDANTS**

**JUDGMENT of Mr. Justice Barr delivered electronically on 2nd day of February, 2024.**

**Introduction.**

**1.** The plaintiff is the owner of a fruit and vegetable farm at Oldcastle in North County Dublin. In September 2011, the defendant leased a field, which was across the road from the plaintiff's farm. The defendant grew potatoes in that field. On 10 September 2011, an employee of the defendant's sprayed the potato field with a herbicide known as Spotlight Plus, which contained the active ingredient carfentrazone–ethyl.

**2.** It is the plaintiff's case that due to spray drift from the herbicide, which was applied to the defendant's potato field that day, during windy conditions, the spray drift was blown across the road and damaged a large proportion of the apples in the plaintiff's orchard. As a result, these apples could not be sold into shops for sale to the public, as had been intended; but instead, had to be sold for processing and for cider. The plaintiff alleges that as a result, it has suffered a loss of profits of €88,243.54.

**3.** The essence of the plaintiff's evidence was that on 17 September 2011, Mr. Donnacha Donnelly, the controller of the plaintiff company, noticed spotting/speckling on many apples in the orchard. He stated that this was more prevalent near the boundary with the defendant's field. It was mainly on the exposed aspect of the apples. He stated that the inner side of the apples, being the side facing in towards the trunk of the tree, and those portions of the apples covered by leaves, tended to be largely unaffected.

**4.** The plaintiff also noticed speckling and marks on some leaves on a hedge and on a holly bush in his mother's front garden, which was across the road from the potato field. It was accepted that there was only minor evidence of damage to some of the leaves on the apple trees in the orchard, as shown in the photographs taken at or around the time of the events complained of. The cause of that minor

leaf damage, is contested between the parties.

**5.** The defendant's case is that while there was damage evident to the apples in the plaintiff's orchard in September 2011, this damage was spread evenly throughout the entire orchard. The defendant maintains that this damage was not caused by spray drift of herbicide from his field, because spray drift typically leaves an uneven pattern of damage. The defendant asserts that the damage to the plaintiff's apples, was caused by the over application by Mr. Donnelly of calcium chloride to the apples in July and August 2011, rather than by spray drift of herbicide, as a result of any spraying done by the defendant's employees on 10 September 2011.

**Issues in the case.**

**6.** The following issues arise for determination in this case:

(a) The defendant brought a motion, which was heard at the conclusion of the evidence, that the plaintiff's action against it should be struck out on grounds of delay and want of prosecution. The court must first rule on that application.

(b) If the relief sought in the defendant's notice of motion is refused, the court must determine the cause of the damage to the plaintiff's apples in 2011.

(c) If the court finds that the damage was caused by spray drift of herbicide from the spraying operation carried on in the defendant's field on 10 September 2011, the court must determine whether liability for that damage rests with the defendant on grounds of negligence, nuisance, or under the operation of the rule in *Rylands v Fletcher*;

(d) If the court finds that the defendant is liable at law for the damage caused to the plaintiff's apples, it must assess what loss and damage was suffered by the plaintiff as a result thereof.

**Summary of Evidence.**

**7.** This action was heard over eight days between October and December 2023. The issue of causation was hotly contested between the parties. Having seen and heard the witnesses, the court is satisfied that each of them has done their best to give an accurate and truthful account of what they saw at the relevant time. Given the stark conflict in evidence in relation to the cause of the damage to the plaintiff's apples, it is necessary to give a detailed summary of the evidence given by the witnesses as to the fact and the expert witnesses in this case.

**Evidence on behalf of the Plaintiff.**

**Evidence of Mr. Donnacha Donnelly.**

**8.** Mr. Donnacha Donnelly is 55 years of age. He qualified with a degree in horticulture from

Warrenstown College of Horticulture in 1986. He is the current operator of the family business, the plaintiff herein, which has been in operation for three generations.

**9.** The family farm is situated at Oldcastle in North County Dublin. It is made up of approximately 120 acres, of which approximately 70 acres were used for growing apples in 2011. The main apples grown on the farm were Bramley, golden delicious and some sweet apples, which were used as pollinators. Mr. Donnelly stated that in a normal year, approximately 70% of the harvest would be sold directly into the retail market, mainly to supermarkets. These apples had to be of a very high quality, both in terms of taste and appearance. The supermarkets would not accept any apples that had visual blemishes.

**10.** Mr. Donnelly stated that in a normal year, the harvest would be done in the months of August/September/October. The apples would be kept in cold storage and would be released onto the market gradually over the following 10 months. Normally, approximately 70% of the apples harvested would be sold into the retail market, with the remainder sold for processing, either to make apple filling for bakery products, or for cider.

**11.** Mr. Donnelly stated that he had sprayed trees with nutrients, including calcium chloride, for very many years prior to 2011. He had also used it since that time. He had never encountered any speckling or spotting to the apples, as a result of the application of calcium chloride.

**12.** The spraying machine that was used for the application of nutrients to the trees in the orchard, was designed to emit jets of nutrients at a pressure of 14 bar, which was then dispersed to the trees by means of a fan. The sprayer was attached to the back of a tractor, which would drive up and down the aisles of trees in the orchard, spraying the nutrient into the apple trees on either side. The object of the spraying was to ensure that the apples were completely covered by the nutrient that was being applied.

**13.** The witness stated that, as per his spray records, he had applied calcium chloride, along with other nutrients, to the orchard on three occasions in the summer of 2011; being 20th July, 4th August and 17th August 2011. On the first two occasions the calcium chloride was applied to the entire orchard. However, because harvesting had begun at the time of the third application, it was only applied to 30 acres of the 70 acre orchard.

**14.** The witness gave evidence describing how he had observed spraying taking place on the defendant's field on 10th September 2011, when he was in the kitchen in his mother's house, which was directly across the road from the defendant's land. He stated that he was surprised that the

defendant would elect to spray on that day, due to high winds. He recalled seeing the tractor proceeding down the field with spray being emitted from the machine at the rear, with a large plume of mist behind it.

**15.** Mr. Donnelly stated that some seven days after he had seen the spraying operation being carried out on the defendant's lands, he noticed spots on the trees in his orchard. He noticed that the speckling/spotting appeared to be on the exposed surfaces of the apples, meaning that the spots were on the side of the apple that was facing into the aisle and was more exposed to the air. There was very little, or no spotting, on the inner side of the apples, which were closer to the bark of the tree. In addition, where the apples were covered by leaves, they were largely protected from speckling. He stated that he also noted that the spotting was more severe, the closer one was to the road and to the defendant's land. In addition, he noted that apples that were in protected areas i.e. behind trees and buildings, tended to be less affected by the spray drift.

**16.** Mr. Donnelly stated that there was some evidence of scorching on some of the leaves in the orchard. However, as these were mature leaves, they were not as affected by the drift, as the apples. In addition, he stated that there was evidence of speckling and scorch damage to the leaves on the privet hedge and on a holly bush at the front of his parents' property, which was adjacent to the road between the plaintiff's farm and the defendant's land.

**17.** Mr. Donnelly stated that there were apples in a bin, which was near the glasshouses on the farm. Those apples that were on the top layer in the bin, were affected by speckling and spotting, but not the apples in the lower layers.

**18.** He stated that on 19th September 2011, he contacted the first defendant and told him that there was a problem and that he thought that it had been caused by spray drift coming from the defendant's land, as a result of the spraying carried out on 10 September 2011. The first defendant and one of his employees, Mr. Tony Doyle, attended at the plaintiff's farm at 16:00 hours that afternoon. They walked through part of the farm and took a number of photographs. They were on the farm for approximately 1.5 hours.

**19.** Mr. Donnelly also contacted Mr. Dermot Callaghan, a farm adviser in Teagasc, who came out and inspected the farm.

**20.** On 22nd September 2011 a sample of apples was taken from the farm by a representative from Eurofin, for the purpose of carrying out a residue test. That test was returned some days later. It was

negative for any herbicide residue.

**21.** On 22nd or 23rd September 2011, Mr. Con Traas, who was chairman of the apple growers association, visited the farm at the plaintiff's request. On 23rd September 2011, a detailed set of photographs was taken of the apples and other foliage on the plaintiff's farm by Mr. Morgan Tracey, who is a photo journalist and is the plaintiff's brother-in-law.

**22.** On 27th September 2011, Mr. David Cooney of Whites Agri, attended at the farm on behalf of the defendant. He returned to the farm on 5th and 12th October 2011 and again on 21st October 2011, at which time he took samples of the damaged apples.

**23.** In terms of the losses that were suffered by the plaintiff, Mr. Donnelly stated that while the sales figures for 2011 looked quite strong, that was due to the fact that in the early part of 2011, they were selling apples that had been harvested in the previous year and which had been held in cold storage. Due to the damage to the apples in the harvest of 2011, he had had to sell those apples very soon after the harvest. They were sold at a much reduced price to Michael Mackle for processing and use in bakery products. The remainder was sold to Bulmers for making cider. The witness stated that normally, he would be paid €9 per 12 kg box, whereas for the damaged apples, he was only paid €52 for a bin of apples. He stated that he had sold approximately 474 bins of apples to Michael Mackle for €52 per bin, and he had sold the remainder for the production of cider; which resulted in a net loss of profit for the plaintiff of €88,243.54.

**24.** In cross-examination, Mr. Donnelly accepted that a significant portion of the orchard was set back from the road and was behind the houses owned by Mr. Donnelly and his parents and behind the glasshouses. He accepted that at certain points along the road there were tall trees and that there were also lines of trees designed as storm breakers, throughout the orchard. While he did not accept that the total distance from the road to the extreme northerly boundary of the orchard was in the order of 750 m, he was not able to contradict that assertion.

**25.** He accepted that he had not told the defendant, or his representatives, about the negative residue test that he had received in September 2011 from Eurofin. He thought that he had mentioned the test to his expert witnesses. When it was pointed out to him that he had hidden the fact that there had been a negative residue test, he denied that assertion, pointing out that he had stated in his letter sent to the first defendant on 19th January 2012 that there was no residue found on the apples.

**26.** Mr. Donnelly accepted that he had sold the same quantity of apples to Bulmers for cider

production in 2011, as he had done in 2010. When it was put to him that his figures demonstrated that 2011 had been a very good year in terms of receipts, he denied that, pointing out that the sales during that year had been made up of the sale of apples harvested in 2010 and the fact that he had had to sell the entire of the 2011 harvest, before the end of that calendar year.

**27.** Mr. Donnelly denied that he had ever maintained that the pattern of spotting to the apples was evenly distributed throughout the orchard. He stated that he had always maintained that the spotting was more severe in those parts of the orchard that were closer to the defendant's land; but he stated that there was spotting evident throughout the entire of the orchard.

**28.** It was put to the witness that the first defendant and his witnesses, Mr. Doyle and Mr. Cooney, would state that there was no obvious pattern to the spotting on the apples throughout the orchard. The witness denied that, stating that there was a discernible pattern, whereby the spotting was more severe the closer one moved towards the defendant's lands. He stated that while Mr. Hoey and Mr. Doyle had walked through the orchard, they had not walked through the entire orchard and in particular, they had not gone to the outer extremities of the orchard. The witness agreed that the damage to the apples was primarily to the exposed side of the apple, which faced into the aisle between the rows of trees. The speckling was much less, or was absent, from that part of the apple that was facing towards the trunk of the tree.

**29.** It was put to the witness that the defendant and his witnesses would state that there was no noticeable scorching on the leaves on any of the trees; the witness did not agree with that assertion. He stated there was some scorching to the leaves on some of the trees, as shown in the photographs taken by Mr. Tracey.

**30.** It was put to the witness that the defendant and his witnesses observed spotting on apples that were in well sheltered areas. Mr. Donnelly stated that there was some spotting on those apples, but it was not nearly as severe, as on the apples in other more exposed areas of the orchard. It was put to the witness that there was no discernible damage to the grass in the orchard; he stated that he had not looked at the grass. He accepted that in the photographs taken by Mr. Tracey, there was no visible damage on the grass.

**31.** It was put to the witness that the report that had been obtained by the defendant from the Farm Advisory Services Team (hereinafter "FAST") in the UK, clearly demonstrated that the damage to the apples was not caused by spray drift of the herbicide, but was due to the over application of calcium

chloride to the apples; the witness did not accept that conclusion. He reiterated that he had used calcium chloride for many years prior to 2011, and since then, and had never had any spotting or speckling to his apples.

**32.** It was put to Mr. Donnelly that the conclusion in the FAST report, demonstrated that there was more calcium in the damaged areas in the apples, than in the undamaged areas; which indicated that the damage was caused by an excessive application of calcium chloride. The witness stated that he had seen that conclusion in the report, but he totally disagreed with it. The witness accepted that he had been furnished with a copy of the FAST report in June 2012 and that he had discussed the report with the defendant's employee, Mr. Doyle. It had been agreed that he would discuss the results of that test with his expert, Mr. Traas. The plaintiff stated that in light of that conclusion, Mr. Traas had carried out his own test in 2013, which was detailed in his report.

**33.** It was put to the witness that further tests had been carried out in August 2012 by the experts acting on behalf of the defendant, who had applied Spotlight Plus to a sample of apples on 31st August 2012. The results had come to hand in October 2012. The witness accepted that he had met Mr. Doyle again on 6th November 2012, to discuss that report. He stated that he did not place much significance on the report that he had been shown, because he had used calcium chloride extensively over the years, without any problem.

**34.** It was put to the witness that the defendant had obtained a number of scientific reports based on examination of the actual apples taken from the orchard, which disputed his theory that the damage had been caused by spray drift of herbicide. Mr. Donnelly accepted that these tests had been carried out, but he did not accept the results as stated in the reports. He stated that he was very clear about what had happened to the apples in his orchard. He had told the truth about what he had seen.

**35.** Mr. Donnelly denied that the damage to the apples in his orchard could have been caused by the application of calcium chloride, as applied in July and August 2011. This was primarily due to the fact that when one was spraying with a nutrient, it was essential that the entire apple was covered with the nutrient; otherwise that would give rise to difficulties later on. As the spots to the apples in his orchard, were only apparent on the exposed sides of the apples, the witness stated that this showed that that damage was due to spray drift, rather than to the over application of calcium chloride. He stated that if the damage had been due to the application of calcium chloride, it would have been evident over the entire surface of the apple.

**36.** It was put to the witness that the defendant's expert had been denied access to an essential piece of information, being the negative residue test results in September 2011. Mr. Donnelly accepted that he had not informed the defendant expressly of the outcome of that test. However, he denied that that was very significant. He stated that one would not have expected to have found any residue of the herbicide on apples that were tested approximately 14 days after the spraying had taken place. That was because the herbicide was designed to kill whatever it came contact with and it would then break down itself quite rapidly.

**37.** The plaintiff stated that in a normal year, they would sell approximately 70% of their apples to the retail market, as they would get the best price. They produced a quality apple. The remainder of their apples would be sold for processing.

**Summary of Evidence of Mr. Dermot Callaghan.**

**38.** Mr. Callaghan stated that he had worked with Teagasc since 2008. In 2011 he was the fruit adviser and development officer in that body. He holds a degree in horticulture from UCD.

**39.** He stated that in September 2011 he was contacted by the plaintiff, who stated that he had a problem on his orchard. Mr. Callaghan visited the farm on 23rd September 2011. He was there for approximately 2.5/3 hours. He walked around most of the orchard. He stated that he saw damage to the apples, as shown in the photographs which had been taken by Mr. Tracey and as in the photographs that he had taken that day. His opinion was that that damage was consistent with herbicide damage caused by spray drift.

**40.** He also noted that there was damage to the privet hedge and to the holly tree in the front garden of the plaintiff's mother's house. He noted that the holly tree was badly damaged on the windward side; whereas on the side facing the house, the damage was not so great. He stated that the pattern of damage generally, was more on the exposed parts of the fruit, particularly those parts on the windward side, facing the direction of the defendant's farm. He noted that in sheltered areas, where the apples were more protected, the damage was considerably less.

**41.** Mr. Callaghan stated that the retail food market is very demanding in relation to the appearance of fruit. If there is any blemish on the fruit, it will be downgraded for use in processing. It will not be sold to the general public. He stated that he took photographs on his visit as shown in his report.

**42.** In cross-examination, Mr. Callaghan stated that having walked around the orchard for approximately 2.5 hours, he formed the conclusion that the damage to the apples had been caused by

herbicide drift damage. He stated that he may have advised the plaintiff to get further testing done on the apples, but he could not recall whether he had specifically given that advice. He did not recall being told by the plaintiff that he had obtained a negative residue test. He stated that the result of a test for residue, would depend on the length of time from the date of application and on the intervening weather conditions at the locus. He stated that he was never furnished with the Eurofin test result.

**43.** Mr. Callaghan stated that following his visit to the farm on 23rd September 2011, he furnished a written report in relation to what he had seen. He accepted that in his report he had stated that the spraying of the potato field had been done in the "previous weeks". He stated that he had not looked for a specific date in relation to when it was alleged that the potato field had been sprayed with herbicide.

**44.** It was put to the witness that the plaintiff had deliberately refrained from telling him about the result of the residue test that he had commissioned. Mr. Callaghan stated that such a test did not trump the other evidence. He stated that he had a lot of knowledge about residue levels; it would depend on the initial dose applied, the length of time that had intervened between that time and the date of testing and the intervening weather conditions.

**45.** It was put to the witness that his report was purely a report of his first impressions; the witness stated that it was an initial report, giving his opinion in relation to what he had seen on his visit to the plaintiff's farm on 23rd September 2011. He stated that he was never told of the content of the report that the defendant had obtained from FAST. He only learnt of the existence of that report during the hearing of the case in October 2023. He had not read that report. He stated that his evidence was based on his report, which was based on his visual inspection of the orchard on 23rd September 2011.

**46.** He stated that he was not in a position to give an opinion on the conclusions in the FAST report, that the damage to the apples had been caused by the over application of calcium chloride.

**47.** Mr. Callaghan stated that on his inspection of the farm, he had walked through the orchard with Mr. Donnelly; they had stopped and examined apples from time to time. He was trying to discover whether there was any pattern to the damage and from where the damage may have emanated. They walked extensively through the orchard over a period of approximately 2.5 hours. He stated that there was damage throughout the orchard, but it was more severe the nearer one went to the road and was more severe on the exposed and windward side of the apples, irrespective of whether the rows of trees were laid in an east/west or north/south orientation.

**48.** It was put to the witness that the damage which he had observed, was essentially calcium

damage; the witness disagreed with that assertion. It was put to him that he had not done any scientific testing, similar to that which had been obtained by the defendants; Mr. Callaghan stated that he did not see any evidence of calcium damage. He could not comment on the defendant's expert's reports, as he had not read them. It was put to him that he had not done any chemical testing and therefore could not disagree with the content of the FAST report; the witness reiterated that his opinion was based on what he had seen on his visit to the orchard on 23rd September 2011.

**49.** Mr. Callaghan stated that he could not recall when he first had knowledge that calcium chloride had been sprayed by the plaintiff on his apples. He could not recall any conversation about it. It was his opinion that there were no symptoms of calcium chloride in the orchard when he saw it. He remained of the view that there were no symptoms of calcium damage in the orchard on the day of his visit; notwithstanding any scientific evidence that may have been obtained by the defendant.

**50.** In re-examination, the witness stated that in cases of damage caused by the over application of calcium chloride, one would get extensive leaf scorching, which was not present in this case. He stated that the damage which he saw in the orchard, was not consistent with damage caused by the application of calcium chloride.

**Evidence of Dr. Sean Mac an tSaoir.**

**51.** Dr. Mac an tSaoir stated that his primary degree was a bachelor of science and bachelor of agricultural science degree, which he obtained in the years 1977 to 1979. Thereafter he completed his doctorate in 1983. He was a lecturer in Queen's University Belfast for 10 years. From 1994 to 2020, he was the expert responsible for the apple industry in County Armagh, which is the primary apple producing county in the country. That was a UK Department of Agriculture post. That body held an ORETO licence for the carrying out chemical testing of various materials, such as pesticides.

**52.** The witness began his evidence by describing the effect of both herbicide and calcium chloride. The herbicide that was used in this case, was discovered in the 1960s. It is a contact herbicide. This meant that it burns green tissue, whenever it comes into contact with it. Even a tiny amount of the herbicide, will burn whatever it lands on. If the molecule lands on a piece of green tissue in sunlight, it penetrates the cells and under the influence of sunlight, it breaks down and it releases an oxygen atom. The oxygen atom is a very reactive and dangerous structure, that has to be managed very carefully by all living cells. In this case, the oxygen will destroy the lamellae, which are the membranes surrounding the cell. He stated that it was similar to having a zip, where one stuck a screwdriver into it, to break the

zip, so as to make a hole in it. Once that happened to the membrane of the cell, the cell would leak material. The sap from the cell would emanate from the cell where it had been in contact with the chemical. This results in the cell dying. It would begin with an appearance of black tissue on the outer skin of the apple and could go on to develop into a hole. The witness stated that the damage that was evident on the apples in the photographs taken by Mr. Doyle, Mr. Tracey and Mr. Callaghan, was consistent with damage caused by the apples coming into contact with a herbicide.

**53.** Dr. Mac an tSaoir stated that calcium chloride has been applied to apples since the end of World War II. This was necessary, due to the fact that the retail market required a supply of apples on a year-round basis. That required that the apples be stored in cold storage for a considerable period after they had been harvested. The apples would be sprayed with calcium chloride to strengthen the cell structure, meaning that it could survive longer.

**54.** The witness stated that it was very difficult to administer too much calcium chloride. Even at a very high concentration, it would scorch the leaves on the fruit tree, but would not damage the fruit. He stated that he had been responsible in the course of this work, for the management of 20,000 ha of orchard. He had seen calcium damage on leaves on apple trees, but had never seen any damage on apples, caused by the over application of calcium chloride.

**55.** The witness stated that it was important for a farmer to maintain adequate spray records. In this case, the plaintiff's spray records had been properly completed. He had recorded the dates on which he had applied various materials to the fruit; the concentration of the material that had been applied; the area of the orchard to which it was applied; and the weather conditions that pertained on the day. The witness stated that it was good practice for a farmer to spray his apples with calcium chloride. Spraying such a nutrient on the fruit, would not cause damage. The levels of calcium chloride that had been sprayed by the plaintiff in this case, were not excessive.

**56.** In relation to the herbicide that was applied by the defendant to his field of potatoes, the witness noted that the defendants' records in this regard, had been incomplete. The record had merely recorded what herbicide was to be applied. There was no detail as to the actual application of the herbicide. In particular, there was no record of wind speed or wind direction that pertained on the day that the spraying took place. He was of the opinion that the level of record-keeping by the defendant, had been deficient.

**57.** In relation to the length of time for which the herbicide would remain on fruit, the witness stated

that the herbicide would begin to break down the cell membrane on the tissue on which it landed from the moment of first contact. This was accelerated by sunlight. Not only would the tissue begin to break down, the chemical itself would break down. It was a selling point of the product that this would happen quite quickly. In normal circumstances, it would be very unlikely that there would be any residue of the herbicide found on the fruit two weeks after initial contact with the herbicide.

**58.** The guidelines that were contained on the label of the herbicide used by the defendant, indicated that it should not be used in windy conditions. He felt that it should not be used where the wind was greater than 20 km/h. This was due to the risk of spray drift, causing the herbicide to come into contact with non-target material. In particular, the label noted that the herbicide would be harmful to broadleaf plants.

**59.** The witness stated that applying the herbicide, Spotlight Plus, in conditions where there was a wind speed of up to 40 km/h, was not good practice, because there was a very serious risk of damage to non-target foliage due to spray drift. The greater the windspeed at the time of spraying, the greater the amount of spray drift that would occur. In such conditions the person applying the herbicide would have no idea where the spray drift might go.

**60.** The witness stated that if the windspeed was up to 40 km/h, that would cause a lot of spray drift. The molecular droplets could be dispersed a very considerable distance. Academic literature stated that such droplets could be dispersed up to hundreds of metres from the point of initial application. The witness stated that given the recorded windspeeds on the day in question, they were considerably outside the recommendations given by the manufacturer, as to the conditions necessary for the safe application of the herbicide. He was of opinion that it was not safe to spray the herbicide in the weather conditions recorded at Dublin airport that day.

**61.** The witness noted that the photographs taken by Mr. Tracey showed extensive foliage damage to the privet hedge and to the holly tree to the front of the plaintiff's mother's house. He stated that the damage shown in these photographs, was consistent with spray drift damage caused by herbicide.

**62.** The witness gave extensive evidence in relation to the photographs that had been taken by Mr. Tracey showing the damage to the apples in the orchard. He stated that the appearance of the black spots on the apples and in some cases, where they had red rings, were consistent with herbicide coming into contact with the apples. The witness stated that it was significant that the damage appeared to be on the exposed side of the apples and not on the inner side of the apple, which was facing in towards

the trunk of the tree. This pattern of damage was consistent with the damage having been caused by spray drift. He said that the appearance of the spotting/speckling and the red rings, particularly as shown in photographs nos. 24 *et seq*, were characteristic of herbicide damage.

**63.** The witness stated that if damage had been caused by the over application of calcium chloride, you would expect to see a huge amount of leaf damage, which was not present in this case. He stated that in all his years working in this area, he had never seen so much calcium applied to an orchard, that it caused damage to the fruit itself. If it occurred, such damage would be primarily to the leaves on the trees in the orchard, but not on the fruit.

**64.** In cross-examination, the witness accepted that he had not been provided with any apples from the plaintiff's orchard. Accordingly, he had not tested any apples. He stated that he had been brought into the case in the recent past to review the evidence and to provide a report on the material that was provided to him. He stated that he had asked for better quality photographs and had been given access to the photographs taken by Mr. Tracey.

**65.** He accepted that the FAST facility was a well-known fruit advisory service, which had been in existence for over 30 years. However, he stated that they were inferior to the facilities at Reading University and at East Maling, where fruit analysis is carried out. He stated that the personnel at FAST, were fruit advisers; they were not skilled in carrying out scientific analysis of fruit. However, he accepted that the data which had been relied on by Mr. Levett in his report, had been quoted in the report, or had been appended to it. As such, the raw data on which the report was based, was still available.

**66.** It was put to the witness that the residue test that had been carried out on behalf of the defendant, as referred to in the FAST report, which showed the presence of herbicide on the apples, when tested some two weeks after the application, indicated that the absence of any residue on the plaintiff's apples when tested by Eurofin in 2011, indicated that the damage had not been caused by herbicide.

**67.** The witness did not accept that the residue test that had been carried out and reported in the FAST report, was an adequate test for a number of reasons. First, it appeared that the leaves had been sprayed in November. That was inappropriate, as the leaves would have been dead at that time. Therefore the herbicide could not break down the tissue and would remain on the leaf, giving rise to residue on the leaves two weeks after initial application. The witness stated that an expert should know that it was inappropriate to spray the leaves by way of a test in the month of November. He stated that

the spraying of the trees in the month of November was not good practice for generating reliable data, because one would never spray trees in November, because the leaves are already dead. He stated that if the herbicide had been applied in the late summer months, the breakdown of the residue would have occurred quite rapidly.

**68.** He stated that the fact that no residue had been found in the Eurofin test on the apples in late September 2011, was consistent with his opinion, because it was an advertised advantage of the herbicide, that it would breakdown quickly and not leave any residue. The witness was asked about the tests that had been carried out by Dr. Carew. He stated that that test was also inadequate because they had sprayed herbicide at various concentrations directly onto the apples. The whole point of the present case, was that the damage had been caused by spray drift. This meant that tiny molecules of the herbicide were caused to land on the apple, but they would be at the same concentration as had been applied directly from the sprayer. In addition, spraying the apples directly with the herbicide, missed the point, that the spray drift would land in individual droplets onto the surface of the apple, thereby giving rise to the spotting/speckling, as seen in the present case. The witness stated that Dr. Carew's test was inadequate, because he had coated the herbicide directly onto the apples, albeit at different concentrations. That constituted a deliberate application of herbicide to the surface of the apple. It missed the essential point of spray drift, being herbicide which was carried on the wind.

**69.** The witness stated that in high wind conditions, it was quite possible for spray drift to be carried across the entirety of the orchard. He stated that it could even go beyond the orchard, if the wind was sufficiently high. This was due to the fact that there were billions of molecular droplets being carried on the wind. The extent of the area covered by the spray drift, would depend on the wind conditions applicable at the time.

**70.** The witness was asked about the expertise of Mr. Chris Levett, the defendants' expert from FAST. The witness stated that he had done a Google search to try to find out his qualifications, but had been unable to find them. The witness accepted that Mr. Levett may be a top fruit adviser, who had access to analytical facilities.

**71.** It was put to the witness that the defendants' spray records were not deficient, because the relevant regulations concerning the content of such records, only came into existence in this jurisdiction in 2012 and were only operable from 2015. The witness stated that he was not aware of the applicable Irish regulations in 2011. However, he could state that the incomplete records, that had been kept by

the defendant, did not accord in his opinion with good farming practice, which required the person doing the spraying to record accurately the concentration of material applied; the area to which it was applied; and the wind strength and direction applicable at the time of spraying. This was due to the fact that herbicides could cause damage to the environment and in some circumstances to human health.

**72.** The witness accepted that he did not have any experience of testing the herbicide, Spotlight Plus. He accepted that he had not done any tests in the present case.

**73.** In re-examination, the witness stated that the apple mineral analysis from CFAM at the University of Reading, would be capable of being proved by oral evidence. He stated that those facilities still existed. He thought that Prof Mitchell was still available to give evidence. Similarly, he thought that the report from QTS Analytical Services should be capable of being proved by oral evidence. The data in those two reports, was the raw data that had been relied upon by Mr. Levett in his report. The witness stated that there were many experts in the UK and Europe, who could give evidence in relation to the cultivation of apples.

**Evidence of Ms. Isabel Donnelly.**

**74.** Ms. Donnelly stated that she recalled that 10th September 2011 was a very windy day. She had attended at her nephew's christening celebration that day, when part of the gazebo had been blown down in the high wind.

**75.** On 20th September 2011, she was told of the damage to the apples in the orchard by her brother. She walked through the orchard and the front garden in her mother's house. She saw extensive damage in both areas. She took two short videos showing the damage. These were played to the court.

**76.** In cross-examination, Ms. Donnelly stated that she only made the two videos. She did not walk through the entire orchard. She accepted that the damage to the holly tree was to its leaves, but that there was no similar damage to the leaves on the apple trees. She stated that the spots on the holly tree were red spots and there were similar spots on the apples.

**Evidence of Mr. Cornelius Traas.**

**77.** Mr. Traas is 56 years of age. He obtained a degree in agricultural science from UCD in 1991, specialising in horticulture. He obtained his Master's degree in 1993, specifically in the area of mineral nutrition of fruit. At present, he has a number of occupations. He lectures on a part-time basis, 2.5 days per week, in the University of Limerick; lecturing in horticulture and plant physiology, with a small amount of general biology. He has been lecturing in that institution for the last 30 years. Over the years,

he has been asked by various state authorities, such as the Department of Agriculture and Teagasc, to sit on various assessment panels, that assess applications for funding that have been put in for various horticultural and agricultural projects. He has also sat on various other boards, such as the Safe Food Board. He was on the quality board of Board Bia for a four-year period commencing in or about 2010. At present, he is on the horticulture board of Bord Bia on a second rotation.

**78.** His other occupation is as an apple grower. He owns a farm in Co Tipperary of about 40 acres, where he grows apples. They also grow other fruit, such as strawberries and raspberries. They have a farm shop on the farm.

**79.** Mr. Traas stated that having received a call from the plaintiff, he went to visit the farm on 19th September 2011. He stated that he was shocked by what he saw in the orchard. The plaintiff had had a nice crop of apples, but they had been ruined. He stated that he was on site for approximately two hours.

**80.** The witness stated that he saw the spotting/speckling on the apples, similar to that shown in the photographs taken by Mr. Tracey four days later. He noticed that there was less speckling on the inner side of the apples, i.e. the side facing the trunk of the tree. In addition, the damage to the apples, was more prevalent on the windward side of the trees i.e. those that were south facing. The damage was also more evident on the exposed parts of the orchard; whereas trees that were behind shelter belts, where they were protected, were not as badly affected. He also noted that the damage to the apples was more severe in the trees that were closer to the road.

**81.** The witness stated that he also looked at the trees and shrubs in the plaintiff's parents' front garden. He noted the damage to the holly tree in the front garden, as shown in photographs 12, 18 and 19. The damage was primarily to the younger leaves, which probably had less cuticle to protect them. He stated that he was of the opinion that the damage to the apples in the orchard and to the foliage in the front garden, looked like herbicide damage.

**82.** The witness stated that a lot of farmers use calcium chloride as a nutrient. An over application of it, could burn leaves, but would not cause damage to the apples. He stated that he had burnt leaves by the over application of calcium chloride, but had never damaged his apples. He had taken over the running of his farm in 1994. He is 56 years of age. He stated that he had never seen spotting on apples caused by the application of calcium chloride, either on his own farm, or in other orchards in Ireland, or abroad. The purpose of the application of calcium chloride, it is to preserve the apple and its skin.

**83.** Mr. Traas stated that he could not recall when he first learnt that Spotlight Plus had been sprayed on the potato field. He stated that it is a desiccant, which will burn anything it touches; it then breaks down its own molecular structure. In terms of published data in relation to the residue of herbicide, a study in Canada had established that carfentrazone-ethyl would not be detected at a molecular level, more than three days after application. The study had applied that test to a range of fruit, including apples.

**84.** The witness stated that when he was leaving the plaintiff's farm on 19th September 2011, he was satisfied that the damage that he had seen to the apples and the foliage, had been caused by herbicide spray drift.

**85.** The witness stated that on 13th August 2013, he performed his own test to see if he could replicate the damage that would occur to apples by the application of herbicide to them. In his test, he marked off an area of 15 trees in each line, five trees in each line were sprayed with the herbicide, at a concentration of 2% of what would normally be used when spraying directly onto a crop. He had added water to the herbicide in an attempt to get something akin to spray drift.

**86.** He took photographs of the subject apples on 24th August 2013, some 11 days post application of the herbicide. Figure 1 showed a picture of the control sample of unsprayed apples. Figure 2 showed the effect on apples that had been sprayed, at 11 days post application. Figures 3 and 4 showed speckling on the apples, but not on the foliage. He was satisfied that the speckling that was observed on the apples, had been caused by the application of Spotlight Plus, because it was not apparent on the untreated trees.

**87.** He had drawn up a table of his results, which showed that the untreated trees were largely clear; whereas 64.5% of the treated trees, had damaged apples. In relation to the foliage, there was no damage visible. He stated that he was a bit surprised by that finding.

**88.** The witness stated that if the damage to the plaintiff’s apples had been caused by an over application of calcium chloride, one would expect to have found foliage damage. The photographs taken by Mr. Tracey showed a lot of spots on the apples. He did not think that that damage had been caused by the over application of calcium chloride, because if it had been, one would have expected to have seen a netting effect on the fruit from the hydroscopic effect of the calcium. He was of opinion that the damage to the foliage, as seen in the photographs, was not caused by calcium chloride, but was consistent with the spotting or speckling on the apples being caused by herbicide drift. If there had been

an over application of calcium chloride, it would have caused extensive damage to the foliage; much more than was visible on the plaintiff's trees.

**89.** The witness stated that in his opinion, the spotting on the apples as shown in photographs 24, 25 and 26 had been caused by herbicide spray drift. The spotting was more noticeable on the exposed side of the apples.

**90.** The witness stated that he was familiar with the sprayer that had been used by the plaintiff for the application of calcium chloride to the trees in his orchard. The sprayer is designed to push the spray in through the tree. It is designed to cover all parts of the apple. Mr. Traas noted that from the spray records maintained by the plaintiff, he had used a dilute concentration of calcium chloride. He stated that he would have applied a concentration five times stronger than that which the plaintiff had used; and some farmers would have used a concentration that was 10 times stronger than that used by the plaintiff. He noted that the concentration of calcium chloride applied by the plaintiff in July and August 2011, had been at 50% of the maximum concentration recommended by the manufacturer. He stated that these rates were not high enough to cause damage by the application of calcium chloride.

**91.** The witness stated that the speckling visible in the photographs had not been caused by the application of calcium chloride, because in photographs 27, 28 and 29, it was apparent that only parts of the apple had been affected, whereas those parts that were sheltered from exposure to the air, had been largely unaffected, either because they were protected by leaves, or by other apples. He stated that if the damage had been caused by the spraying of calcium chloride, it would have hit all of the apple, including the inner side of the apple, because the sprayer was designed to hit all areas of the apple. He stated that the distribution of the spots on the apples and the absence of extensive leaf damage, was not consistent with the damage having been caused by the over application of calcium chloride.

**92.** Insofar as there was a difference between the appearance of the speckling on the plaintiff's apples and on the apples in his experiment, while he was of the view that both sets of speckling had been caused by the application of the herbicide, the difference could be explained by variable factors such as: the fruit in each case had been at different stages of maturity; different weather conditions; differences in the amount of sunlight; and differences in the concentration of the herbicide applied to the fruit.

**93.** In relation to spray records, the witness accepted that there were no regulations in place in

2011, requiring that they be kept. However, he kept spray records in 2011. He stated that it would be good practice to fill in the applicable weather conditions at the time of spraying. He stated that the defendant's spray records allowed the farmer to instruct his employees to spray certain fields with a particular material. The person carrying out the spraying should then complete the rest of the form. The defendants' records for 10th September 2011, recorded that the total area to be treated was 45.04 ha. It identified the product that was to be applied and the rate at which it was to be applied. However the remainder of the record was not complete, as the details in relation to what was actually sprayed and the weather conditions, had not been entered.

**94.** In relation to the wind speed applicable on 10th September 2011, the witness stated that he had looked at the data from the weather station at Dublin airport. There was not an hour during the day when the windspeed was less than 30 km/h, until after 18:00 hours. Accordingly, in his opinion, it was too windy for safe spraying that day, due to the risk of spray drift.

**95.** The witness stated that the label from the spotlight container (as appearing at page 18) was the label from 2013, which was the same as that in use in 2011. The label stated that the product is toxic and dangerous for the environment. Accordingly one had to be careful not to apply the herbicide to non-target areas. The label also specifically warned against drift onto non-target areas, which had broad leafed crops. The instructions clearly identified the problem as spray drift, which can happen with wind, and also with air inversion in hot periods.

**96.** The witness stated that in his opinion, it had not been appropriate to spray the herbicide on the potato field on 10th September 2011, given the wind speed in the area that day. The evidence of the plaintiff and his sister seemed to confirm that it was a windy day. The witness stated that Dublin airport was 11 km away from the plaintiff's farm, as the crow flies.

**97.** The witness noted that the defendant in his spray records, had specified a concentration of the herbicide that was lower than the normal rate and for that reason Dr. Carew had used the same concentration of 0.5%. He stated that while the motorised knapsack, as had been used by Dr. Carew in his experiment, was like a leaf blower, which had a nozzle and could be adjusted, it could not replicate spray drift. In relation to the accuracy of the application of the herbicide to the sample trees in the experiment, at 1600 trees per hectare, one would have to apply 12.5ml per tree. The lowest rate coming out with the Stihl sprayer as used in the experiment, was 100 ml/ per minute, so one would only have approximately five seconds to spray the tree. He did not think that that was possible. He suspected that

Dr. Carew had over applied to some parts of the tree and had missed other parts.

**98.** In relation to the photographs taken by Dr. Carew, photos 8/19 showed that the leaves at the tips were very desiccated and the bottom leaves were not desiccated, which implied that the chemical had not been in contact with them, which was consistent with an inability to spray the entire tree. Accordingly, he suspected that some parts of the tree in the experiment, had received too much spray; while other parts had not received enough spray.

**99.** In cross-examination, the witness accepted that the spotting to his apples in the test of 2013, was different to the spotting on the plaintiff's apples. He also accepted that he had applied a more dilute concentration of the herbicide, than had been done by Dr. Carew in his test. He accepted that the speckles on the apples in his test, were smaller than those seen on the plaintiff's apples in 2011. However, did not agree that the speckling was entirely different. He stated that the differences were not inconsistent with differences in the concentration of the herbicide that had been applied to the two sets of apples. He accepted that he was not able to point to any one reason to explain the differences in the speckling between the apples in his test in 2013 and the apples on the plaintiff's farm in 2011.

**100.** It was put to the witness that the damage shown on the apples which were subject to Dr. Carew's test, was totally different to the damage evident in his test; he stated that the damage to Dr. Carew's apples was not consistent with spray drift at all. He had seen damage caused by spray drift over the years. From his experience of his own farm and from visiting other farms, he could see similarities between the damage that he had seen on previous occasions due to spray drift and the damage to the plaintiff's apples.

**101.** The witness accepted that Dr. Carew had got a large amount of necrosis on some of his test apples. He thought that that was probably because they had accidentally applied to much herbicide to that area. Expulsion of liquid from a Stihl sprayer is 110 ml/ per minute. They actually required a much less rate of expulsion. One would have to move the nozzle very rapidly to get the liquid out at the required rate of flow to equate with spray drift.

**102.** The witness was asked about the appearance of the grass in photo no. 31, which appeared to be green and unaffected by any herbicide. The witness stated that while it appeared green in the photograph, there was no close-up picture of the grass itself. It was also relevant that the label on the herbicide, warned of damage to broadleaf crops; grass was not a broadleaf plant. However, he accepted that grass would be sensitive to Spotlight Plus, as all photosynthesising plants were. The witness further

stated that apples were approximately 60 mm across and the effects on the apples were approximately 5 mm or less; these would not be visible on the grass. In addition, it was not known whether the grass in the orchard had been cut between 10th Sept 2011 and the date when the photo was taken. While he accepted that the grass did not appear to be discoloured, neither were most of the leaves on the apple trees, as shown in the photographs.

**103.** Mr. Traas stated that the holly tree was a different species. It had been affected by scorching to its leaves. The warning on the label about broadleaved plants was important, as it appeared that they were sensitive to the herbicide.

**104.** He accepted that, while he had a bachelor of agricultural science degree and a master's degree in agricultural science by research, he had not written any papers on grass.

**105.** In relation to his visit to the orchard on 19th September 2011, he stated that having walked through the orchard, he did not purport to advise the plaintiff as such. He may have told him to get a residue test, but he was unsure if he had done so. He stated that by the end of his visit, he was of the opinion that the damage to the apples had been caused by herbicide spray drift. It was for that reason that he had used the word "immediately" in his report. By the use of that word, he meant that he had formed that opinion by the time that he had left the farm. He stated that it looked obvious to him that the damage had been caused by spray drift. By the end of his inspection on that occasion, they had eliminated the possibility of the damage having been caused by the plaintiff's actions and had come to the conclusion that it had been caused by spray drift from the defendant's land. He stated that his evidence was limited to what he had witnessed on his visit to the farm on 19th September 2011 and to the results of the test that he had carried out in August 2013.

**106.** The witness stated that he had looked up Dr. Carew's qualifications and experience on the internet the previous evening. He had found out that Dr. Carew had a doctorate in science. He had written nine articles concerning the growing of raspberries and strawberries and one article on petunias. He had not written any articles on herbicides.

**107.** The witness accepted that he had not written any papers on the scientific analysis of damage to apples. He accepted that he did not have any qualification in toxicology, but he lectured in plant physiology. He stated that he had also done research on a similar herbicide in the past. He was satisfied that he was an expert in the areas that he had covered in his evidence. In terms of the damage to the apples on the plaintiff's farm and that found in his test, he accepted that that there were some

similarities between them and there were some differences. He accepted that he had only sprayed Bramley apples; he had not sprayed any golden delicious apples; accordingly, he accepted that his test had been somewhat limited in scope.

**108.** Mr. Traas stated that he had been asked to provide a report in 2014, which he had furnished in 2015. He had not seen Dr. Carew's report at that stage; he had only had access to the Levett report. He had received that report in 2012, before he had done his own experiment.

**109.** In relation to the residue test that the plaintiff had obtained in September 2011, he did not recollect having been told that the plaintiff had obtained such a test. He did not know when he first learnt of it. He had heard of it in court, in the course of the hearing in October 2023. It was put to the witness that he had not been told of the result of the residue test before either of his two reports. He accepted that had he been told of it, he would have mentioned it in his reports. However, he stated that it would not have changed the experiment that he had carried out in 2013. He accepted that the residue test was important and that he should have been told of its result by the plaintiff.

**110.** It was put to the witness that he had made up his mind as to the cause of the damage to the apples in the plaintiff's orchard, from very early on. He stated that while he had been of the opinion that the damage had been caused by herbicide spray drift, he still carried out the experiment that he had done in 2013, to see if the damage could be replicated on the test apples. He stated that he had made an assumption that the defendant would pay compensation for the damage to the plaintiff's orchard.

**111.** The witness stated that while he had not written any reports on calcium damage to apples, he had seen such damage in orchards that he had inspected in the past. He had not done any testing on those apples. He accepted that when he visited the plaintiff's farm on 19th September 2011, he had not examined the apples for calcium damage. He stated that at the conclusion of that visit, he was of the opinion that the damage to the apples in the plaintiff's orchard had been caused by spray drift.

**112.** The witness was asked how he could be so sure that the damage had not been due to the application of calcium chloride, he responded that he had visited a large number of orchards, some of which had had calcium damage. Based on that knowledge, he was satisfied that the damage to the apples in the plaintiff's orchard had not been caused by the over application of calcium chloride. He stated that he had discussed with the plaintiff what nutrients had been applied to the orchard prior to that time. He also assumed that the plaintiff would have adopted the normal practice in relation to spraying the apples with nutrients. However, he accepted that he had not looked at the plaintiff's spray

records.

**113.** It was put to the witness that in order to rule out that the damage could have been caused by the application of some nutrient, in particular calcium chloride, he should have recommended to the plaintiff that he carry out a multiple residue test on the apples; the witness stated that even if such a test had been obtained, it would not have picked up a significant amount of calcium on a residue test. He felt that such a test would not have yielded any additional information.

**114.** It was put to the witness that the plaintiff had stated in his evidence that he had not recorded all applications that had been carried out to the fruit in the orchard. The witness stated that he was surprised that the plaintiff had not done so, as it would not be correct practice to spray the fruit, without recording that fact.

**115.** It was put to the witness that the defendant's expert had carried out a residue test on the apples that had been supplied to them from the plaintiff's orchard, which had been negative for carfentrazone-ethyl; he stated that that was not surprising, because it was not known what interval of time had elapsed between the taking of the sample from the plaintiff's orchard and the carrying out of the residue test. It was well known that the herbicide will break down quickly after contact with a plant or fruit. Insofar as a residue of the herbicide had been found some days after it had been applied to the test apples in Kent, the witness stated that that was not surprising, because the herbicide had been directly applied to the fruit, which was not the case in relation to the plaintiff's orchard.

**116.** Mr. Traas stated that he was not surprised by the absence of visible damage to the leaves in the photographs of the plaintiff's orchard, because in the month of September, those leaves were not young leaves, they were old leaves, which had begun to die off since June/July of that year. There would be no young leaves in the orchard at that time of year. The witness stated that the herbicide would cause damage to the apples, but not to the old leaves that were on the trees. That had been replicated in the findings that he had found when he applied the desiccant to sample trees in his orchard, in the test that he had carried out in 2013.

**117.** It was put to the witness that the phytotoxicity tests carried out by Dr. Carew, showed that applying the herbicide to leaves, would produce an effect on them; the witness agreed that that appeared to be the case, but pointed out that the table of phytotoxicity set out at p. 13 of the report, seemed to make it clear that there were much more pronounced effects on the fruit than on the leaves. It was put to the witness that the photo at p. 12 of the report, showed a clear effect on both fruit and

leaves; the witness agreed, but pointed out that most of the trees in the plaintiff's orchard would not have had younger leaves at that time of year. It was put to the witness that there was very little, if any, damage shown on the leaves on the trees in the plaintiff's orchard; with which he agreed, but stated that the damage that was shown on the leaves as a result of the test done by Dr. Carew, was explicable by virtue of the fact that he had applied a far greater dose of the herbicide. In this regard he referred to p. 10 of the report.

**118.** It was put to the witness that there were differences in the types of spots on the apples that had been tested by Dr. Carew with herbicide, and the spots appearing on the apples in the plaintiff's orchard; the witness accepted that the damage obtained by Dr. Carew had a different pattern, but stated that that was probably due to the fact that he had done an active spray onto the tree; whereas the situation was different in relation to the plaintiff's orchard, which had been affected by tiny particles being blown on the wind as a result of spray drift. That would produce a different pattern of damage on the fruit. Tiny particles of the chemical would land on the apple, giving rise to small areas of necrosis.

**119.** It was put to the witness that the photographs of the apples that he had sprayed with the herbicide, showed damage that was different in nature, to that shown in the photographs taken by Mr. Doyle; the witness agreed, but stated that he had put more water into the herbicide mixture, in an attempt to mimic spray drift. He had done one experiment at a 2% concentration of herbicide. He accepted that the damage in his photographs was not identical to that shown in the photographs taken by Mr. Doyle; in particular, the damage shown in his photo at fig. 3, was different to that in the photographs taken by Mr. Doyle. It was a different type of spotting caused by the application of the herbicide.

**120.** The witness accepted that he had not adopted any particular protocol when carrying out his test. He accepted that it was a limited test, to see if he could mimic the damage that had occurred to the plaintiff's apples, by the application of carfentrazone-ethyl to the test apples. He accepted that he had not used the ORETO protocol method of testing. The witness stated that on his visit to the orchard in September 2011, he had walked through approximately 75% of the orchard. He had not brought any camera with him; nor had he recorded what he had seen on that visit.

**121.** The witness disagreed that if a multiple residue test had been carried out on the apples, it would have shown definitively whether there had been an over application of calcium chloride to the apples by the plaintiff in the summer. The witness stated that if they had tested samples of the apples at that

time, the level of calcium would only have differed by perhaps 20% at most, if there had been a heavy application of calcium. That was unlikely, as the plaintiff had not done a concentrated application of calcium in the applications that he had done earlier in the summer.

**122.** It was put to the witness that he had adopted an unscientific approach by failing to apply the null hypothesis; instead he had come up with his own theory, having viewed the damage to the apples and had then set about trying to establish that that was the cause of the damage; the witness agreed that he had not adopted the null hypothesis approach, but stated that Mr. Levett had not done so either. Mr. Traas stated that he had done a test to see if the application of Spotlight could produce similar symptoms to what he had seen in the plaintiff's orchard. He accepted that by the time he had left the plaintiff's farm on that first occasion, he was positive that the damage had been caused by spray drift from Spotlight Plus. He accepted that he had not done a test with a range of different concentrations of the herbicide, but had made a best estimate of the likely concentration, as a result of spray drift and had picked a 2% concentration to mimic spray drift. He accepted that a range of concentrations would have been beneficial. He stated that if resources had allowed, that should have been done. He accepted that the test that he had carried out did not comply with the ORETO protocol. He stated that he had always accepted that his was a limited test.

**123.** Mr. Traas denied that he could have got a residue test on the apples in the plaintiff's orchard in 2011 that would have been of value. He stated that it was known that the chemical in the herbicide breaks down quickly. One would have had to have brought the apples to the lab within 2/2.5 days. He accepted that QTS had found residue on the apples that they tested, some 14 days after the application of herbicide to them. He had not done any residue test in September 2011. Nor had he done any residue test on the apples that had been sprayed with herbicide as part of his test in 2013. He stated that that would have added to the cost of the test that he was carrying out.

**124.** It was suggested to the witness that his test was replete with speculation, guesstimates and assumptions; the witness denied that that was the case. He stated that when he did his test in 2013, he did not know what result it would produce. He had applied the herbicide to the apples and had reported on what he had found. It was a limited test for that limited purpose.

**125.** It was put to the witness that Mr. Levett had found an increase of calcium of 15% in the damaged areas of the apples that had been tested; the witness stated that such an increase was not statistically significant. He stated that there would always be a range of naturally occurring calcium in an apple,

which variation could be more than 15%.

**126.** He was asked about the scanning electron microscope test (SEM) that had been carried out by the defendant; he stated that he had not done any such testing. He stated that the results of that test, at p. 7 of the report, had to be viewed in light of the fact that the testing only goes 3/4 micro millimetres down from the surface of the fruit; it only reports on what is found very near the surface of the apple. He agreed that the table in the report showed that there was more calcium in the damaged areas of the Jonaprince 1 apples, but only in one particular tiny damaged area. He stated that it was not possible to have zero calcium in an undamaged area, as all tissue has calcium. It is not possible to have a fruit that did not have calcium in it. He stated that the statistical analysis did not show any significant difference in the amount of calcium in the treated and untreated fruit. He stated that while the test may have shown a higher uptake of calcium in some of the fruit, that was not statistically significant. He reiterated that the 15% higher level of calcium in the damaged areas of the apples, was not significant. He stated that he had only done a statistical analysis approximately six months ago. He had not done any report of his findings. His findings were on his laptop.

**127.** It was put to the witness that the tests carried out by the defendant had shown that there was a 36% increase in calcium found in the Irish apples, which had been damaged, the witness did not agree that that conclusion was supported by the test. This was due to the fact that if you damage tissue, the tissue will export nutrients to the damaged area, including calcium. Accordingly, one would expect to find higher calcium levels in the areas which had been damaged. On that basis, he did not think that the findings made by Mr. Levett, supported the conclusions that had been reached by him. He accepted that he had had Mr. Levett's report prior to furnishing his report, but he had not commented adversely on the Levett report in his report.

**128.** Mr. Traas accepted that there was minimal damage to the leaves in the plaintiff's orchard. The damage was mainly to the fruit. He stated that if the leaves had a waxy cuticle, the herbicide would not damage the leaf before it would breakdown. This explained the absence of visible damage to the leaf. The absence of damage to the leaves could also be explained by the fact that the apples were still growing in September, but the leaves had stopped growing in the previous June/July. He could only speculate that the cause of the absence of damage to the leaves, was due to the fact that an insufficient concentration of the herbicide got through to the leaves. He accepted that, while the plaintiff had stated that approximately 70% of the orchard had been damaged, there was hardly any damage to the leaves

on the trees in the orchard. The witness stated that that was consistent with what they knew about the molecule.

**129.** In re-examination it was put to the witness that when the plaintiff had stated that he had not recorded all the applications, he was referring to video recording, rather than keeping records of what had been sprayed on the fruit. The witness gave further evidence in relation to his qualifications and experience.

**Evidence of Mr. Morgan Tracey.**

**130.** Mr. Tracey is the Mr. Donnelly's brother-in-law. He is a professional sports photographer. He proved the photographs that had been taken by him.

**Evidence of Mr. David Bolger.**

**131.** Mr. Bolger has been a qualified chartered accountant since 2002. He was asked to provide a report in relation to the losses suffered by the plaintiff. He stated that he assessed the losses based on the figures which he had been given by the plaintiff in respect of the price that he obtained for the apples which he had sold in 2011 for processing and for cider.

**132.** He had then compared those figures against the estimate which had been given by the plaintiff of the price which he would have obtained, had the apples not been in a damaged condition. The plaintiff had estimated that he would have obtained the price of €9 for a box of apples. Mr. Bolger stated that he compared that price against figures that were available on the Department of Agriculture website in respect of the price of apples for the period August 2011 to September 2012. This showed that the price obtained for eating apples ranged from €6/7 to €12/14 per box. Based on that, Mr. Bolger was of the opinion that the price of €9 per box, seemed an appropriate figure to use for comparative purposes.

**133.** The plaintiff had told Mr. Bolger that from the 2011 harvest, he had been able to sell 474 bins of Bramley apples to Mr. Mackle for processing and he had sold 125 bins of eating apples from that harvest. In total he had received €30,095.

**134.** By subtracting the price actually obtained, from the price that he could have expected to have obtained if the apples were in an undamaged condition, Mr. Bolger estimated that the plaintiff's loss on that harvest was €88,243.54.

**Evidence on Behalf of the Defendants.**

**Evidence of Mr. David Cooney.**

**135.** Mr. Cooney is an agronomist by training. In 2011, he worked for Whites Agri, who had supplied the Spotlight Plus to the defendant. He gave evidence of a number of visits that he made to the plaintiff's farm.

**136.** He stated that he was first contacted by the defendant on 23rd September 2011, when the defendant had telephoned him to say that he had received a phone call asserting that he may have caused damage to the plaintiff's orchard, due to spray coming from his potato field. Mr. Cooney made contact with the plaintiff and went out to visit the farm on 27th September 2011. The plaintiff pointed out a number of apples that had blemishes on them, which the plaintiff believed had been caused by the herbicide. Mr. Cooney took samples of the apples.

**137.** During that visit, he walked part of the orchard. The damage to the apples was on both sides of the aisle of trees. Mr. Cooney stated that he had never seen that before. He stated that he had seen damage caused by spray drift on a previous occasion. Normally you would see it in an adjoining field; particularly where there was a gap in a hedge, or where there was a gate, there would be evidence of spray drift damage at that point in the adjoining field. He stated that he had never seen anything like what he saw on the plaintiff's farm that day. He stated that the damage which he had seen on the plaintiff's apples appeared to have a very uniform application. It was not like the usual damage one would see from spray drift.

**138.** Mr. Cooney visited the plaintiff's farm for a second time on 5th October 2011. He had contacted the importer of the herbicide, T. P. Whelehan, and had asked him to come and have a look at the farm. He inspected the farm with him.

**139.** Mr. Cooney's third visit to the plaintiff's farm was on 12th October 2011, when he went to the farm with Mr. Billy O'Dea, an agronomist, from Deeside Agri, who supplied chemicals to Whites Agri.

**140.** Mr. Cooney's fourth visit to the farm was on 21st October 2011, when he collected a sample of apples from the plaintiff. These were brought by him to the offices of the defendant, from which they were sent to the UK for testing.

**141.** The witness stated that on his viewing of the orchard on 23 September 2011, the damage to the apples seemed uniform, in that it was on both sides of the row of apple trees and on both sides of the apples. He was not able to see any greater level of damage at any particular points. He was trying to find a pattern to the spray drift, but he could not find any discernible pattern.

**142.** In cross-examination, the witness stated that if there is spray drift, it can cause damage to plants, as the herbicide is designed to cause damage to any living plant with which it comes into contact. He accepted that the herbicide had the potential to cause damage. He accepted that on the label, there was advice as to the necessity of avoiding spray drift.

**143.** Mr. Cooney accepted that it would be dangerous to spray in very windy conditions. He accepted that high winds could cause spray drift. If the spraying was occurring on a windy day, he would advise the operator to be sure to get the spray directly onto the target area.

**144.** Mr. Cooney confirmed that when he visited the farm on 27th September 2011, he only walked through one field on the farm. As far as he recollected, it was the field nearest the entrance to the farm. He repeated that the damage that he saw on that inspection of the orchard, was on both sides of the row of trees. It was uniform in nature, which was something that you would not see with spray drift damage. He clarified that when he used the word "uniform", he meant that there was an evenness to the damage appearing on the apples. That was unusual, because with spray drift one would not find that uniformity, even in a small area. He confirmed that he obtained some samples of damaged apples from the plaintiff when he visited the farm on 27th September 2011. He could not recollect what he had done with them. He obtained further samples by arrangement with the plaintiff when he visited the farm on 21st October 2011. He accepted that he had not seen spray drift damage many times in the past. It was not common. He estimated that he had seen it on less than six occasions.

**145.** In re-examination, the witness stated that he had seen spray drift damage recently. It was on a field of grass that was being sprayed and some spray drift had got through a gap in the hedge and had gone about 10 feet into an adjoining field.

**Evidence of the Defendant, Mr. Hoey.**

**146.** The defendant is 60 years of age. He has been farming all his life. He and his brother started the company in 1993. They currently have over 400 employees. They farm an area of approximately 3,500 acres.

**147.** In 2011, he had rented the field, situated across the road from the plaintiff's mother's house. He used that field for growing potatoes. They had first applied a herbicide, Dicot, to kill the leaves on the potato plant. When these had been removed, they were left with the haulm or stalks which protruded out of the ground in a cage like structure. In order to remove them, prior to harvesting the potatoes,

they were sprayed with the herbicide, Spotlight Plus. It was accepted that the potato field had been sprayed with the herbicide on 10th September 2011.

**148.** The defendant stated that the spraying had been done using a Knight self-propelled sprayer, which consisted of a long boom on which there were a number of nozzles, every 0.5 m. The nozzle that was used was a Syngenta 5 nozzle. The defendant stated that this nozzle was designed not to emit the herbicide in a spray or arc, but in a very directed manner, which he described as being like squeezing liquid out of a Cif bottle. The nozzles were pointed at a 30° angle, pointing alternately forwards and backwards. This was designed to ensure that the herbicide was targeted onto the protruding stalks.

**149.** The defendant accepted that the herbicide had been applied to the field in accordance with the spray records that had been maintained by him. He stated that they had moved to a computer-generated records platform prior to 2011. It generated a large number of fields on the form; however, they were not required at that time, to fill in all the fields. That requirement only came into Irish law circa 2015. It was for that reason that some of the fields were left blank in the spray record in relation to the spraying of the potato field on 10th September 2011.

**150.** The defendant stated that he had received a call from the plaintiff on 19th September 2011, informing him that there was damage to the apples in the plaintiff's orchard. The plaintiff stated that he thought that that damage had been caused by spray drift from the spraying of herbicide on the defendant's field earlier that month. At approximately 15:00 hours that day, the defendant went to the plaintiff's farm, with one of his employees, Mr. Tony Doyle.

**151.** The defendant stated that he and Mr. Doyle were on the farm for approximately 1/1.5 hours. During that time, they walked a considerable part of the farm. The defendant stated that the damage to the apples was uniform, in that it was on the outer aspect of the apples, on both sides of the rows of apple trees. He noted that there was more damage to the apples on the trees that were at the end of the row. He also noted that the damage appeared on the apples, even if they were in protected areas e.g. behind trees, or in the area behind the glasshouses. The damage to the apples appeared to be uniform, in that it appeared to the defendant to be at the same severity in all parts of the orchard, with the exception of the end of the rows, which appeared to him to be more severely damaged.

**152.** The defendant stated that the photographs taken by Mr. Doyle gave a true representation of what he had seen in the orchard that day. As shown in the photographs, the damage was almost exclusively to the apples. There was very little damage to any leaves. The defendant felt that insofar as

there was damage to the leaves, that was just natural decay.

**153.** The defendant repeated that the damage appeared uniform throughout the orchard, even in the most northerly part of the orchard, and in sheltered areas. As a result, he formed the view that the damage had not been caused by spray drift from the spraying of herbicide onto the potato field.

**154.** The defendant stated that he had insurance cover to deal with any potential claim. He had put his insurers on notice of a potential claim. They had initially dealt with the defence of the claim, but he had subsequently elected not to make any claim under his policy of insurance, as he wished to fully defend the claim, in light of the reports that he subsequently received from Mr. Levett and Dr. Carew. For that reason, he had taken over the defence of the proceedings from the insurance company.

**155.** The defendant stated that after he had inspected the orchard with Mr. Doyle, they contacted Mr. Callaghan in Teagasc to see if they could test the apples. The defendant was informed that Teagasc did not have the capacity, or the time, to do that testing. Ultimately, they had had to send the sample apples for testing to the testing facility in the UK, where Mr. Levett had carried out his investigations, giving rise to his report. The defendant stated that upon receipt of Mr. Levett's report, he was confirmed in his opinion that the damage to the plaintiff's apples had not been caused by spray drift.

**156.** The defendant stated that he was never informed by the plaintiff that he had obtained a negative residue test in September/October 2011. He denied that he had ever received the letter dated 19th January 2012, which was allegedly sent by the plaintiff to him. He accepted that there may have been contact between the plaintiff and the loss adjuster appointed by the defendant's insurers, because the defendant had notified his insurers of a potential claim.

**157.** The defendant stated that on 18th January 2012 there was a meeting between Mr. Tony Doyle and the plaintiff, at which the plaintiff was given a copy of the Levett report. The plaintiff was not happy with its findings. Because of that, it was decided to do further tests. Mr. Doyle and the plaintiff worked out the scope of those tests. It was as a result of that agreement to carry out further testing, that the report was furnished by Dr. Carew.

**158.** In relation to the carrying out of spraying operations on the day in question, the defendant stated that the sprayer operator was probably the most experienced employee on the farm. It was up to him to decide on any given day, whether it was safe to proceed with the spraying operation. The defendant reiterated that the nozzle that was used on the sprayer that day, was a nozzle which directed spray directly onto the target area. It was designed to hit the stalks and penetrate down to the bottom

of them, rather than to cover a large area. However, he accepted that wind direction and speed would be relevant to the issue of spray drift.

**159.** The defendant stated that the spray operator on the day, Mr. Hogan, was still with the company. It was not intended to call him as a witness, because the defendant did not dispute that they had sprayed the herbicide onto the potato field on the day in question.

**160.** In cross-examination, was put to the defendant that there had been delay in agreeing discovery between the parties, which had ultimately been resolved by the making of a consent order for discovery against the defendant on 15th January 2018. Which affidavit of discovery, was ultimately furnished on 19th January 2019; only referred to a small number of spray records. The defendant stated that he could not explain the delay that had occurred in making discovery. The litigation at that time had been handled by the solicitors appointed by the insurance company. In relation to the volume of documentation provided, he stated that they have provided all documents that had been requested of them by their solicitors for the purpose of making discovery. He stated that they could have supplied documentation in relation to the Syngenta 5 nozzle. However, he pointed out that that information was freely available on the internet.

**161.** The defendant was asked about the damage shown in the photos of the holly tree; he stated that that damage could have been caused by anything, such as diesel fumes from lorries travelling along the road, or it could have been due to natural senescence.

**162.** In relation to the spray record for 10th September 2011, the defendant accepted that they had used a fairly concentrated dose of the herbicide. That had been done deliberately in order to reduce run-off onto the adjoining soil. While the manufacturer recommended using 300 L per hectare, that was just a guide for the quantity of water that could be applied with the herbicide per hectare. It was not a requirement. The witness accepted that on the label, it was recommended that the spray operator should be careful to avoid spray drift onto broadleaf plants.

**163.** The defendant accepted that the pressure at which the herbicide had been sprayed, was not recorded in the spray record. He stated that they would spray at 2.5/3 bar of pressure. Whereas the plaintiff sprayed his calcium chloride at between 12/14 bar. He stated that they had used approximately 9000 L of water with the herbicide. While the nozzle rating was not recorded in the spray record, he had used a Syngenta 5 nozzle. He was able to say that, because he had set the sprayer nozzle the week before the spraying had occurred.

**164.** The witness was questioned about his visits to the plaintiff's farm. He reiterated that the damage to the apples in the area beyond the glasshouses, was quite pronounced. He was asked about Mr. Callaghan's evidence to the effect that he had seen herbicide damage to the hedge. The defendant disagreed; he stated that he had seen senescence to the hedge. When asked about the photographs taken by Mr. Tracey at p. 17 / 19, he stated that the evidence of damage to the leaves could be autumn die off, or senescence. He accepted that Holly was an evergreen bush, but he stated that it had been very dry at that time in 2011.

**165.** The defendant disagreed that the spraying of calcium chloride would cover the whole apple. He stated that a blast emitted at 14 bar pressure, would not cover the whole apple. It would only cover the outer facing sides of the apples. In relation to the photo on p. 34, showing the damage to the apples in the top layer in the bin, this suggested that the apples had been picked with the spotting on them. He stated that the spotting looked older than having occurred on 10 September 2011. The witness accepted that he had not walked through the entire of the orchard, but stated that he had covered a considerable amount of it. When put to him that, if the damage had been caused by calcium chloride, there would have been damage to the leaves as well; he stated that he could not give an opinion on that, as he was not a scientist.

**Evidence of Mr. Tony Doyle.**

**166.** Mr. Doyle stated that he attended the horticultural college in Warrenstown from 1972 to 1974, when he qualified with a senior diploma in horticulture. He was a horticultural technician in the college in charge of fruit growing from 1974 to 1979. During that period he was heavily involved in the practical side of teaching. There was an extensive orchard in the college of some 27 acres, growing a wide variety of apples.

**167.** After he ceased working at the college, he joined An Foras Talúntais, where he worked in the technical department, where they carried out trials to identify diseases in vegetation. They also liaised with farmers in relation to various issues concerning the growing of crops. He worked in a commercial farm in Kinsealy, Co. Dublin in the period 1979 to 1987. He also worked abroad on secondment from Teagasc and An Foras Talúntais, in countries such as Saudi Arabia, where he acted in an advisory capacity on various crop growing projects. He did three separate secondments to Saudi Arabia during that time. Following that, he worked in the Northwest of England, as a senior agronomist. He then

returned to Ireland and worked with Keeling's fruit farm until 1998. He then joined a fruit and vegetable growing company, which grew vegetables in Portrane in Co. Dublin and in Co. Wexford. He was the general manager in that company from 1998 to 2005. He commenced working with the defendant in March 2005.

**168.** Mr. Doyle stated that on 19th September 2011, the defendant had told him that he had received a call from the plaintiff, who had stated that he had an issue in his orchard. He said that there was a possibility that they may have damaged the crop. The defendant had asked Mr. Doyle to accompany him to the plaintiff's farm. Mr. Doyle stated that he had never encountered a similar problem with the defendant company before.

**169.** Mr. Doyle stated that they attended at the farm at approximately 14.30 hours on 19th September 2011. They had a brief conversation with the plaintiff, who said that the damage to the fruit on the trees may have been caused by spray drift. They looked at the hedge and shrubs in the plaintiff's mother's garden. There were some dead spots on the leaves, but that did not worry him very much. He stated that one would often get that in hedges. They then proceeded to walk through the orchard. They walked through a large proportion of it. There was spotting on the open sides of the apples. This was consistent in appearance. There was no spotting on the leaves.

**170.** The witness stated that there was a scorch mark on the leaves in photograph 1 that he took, but it could have been caused by a lot of things, such as dry or wet conditions. The remainder of the leaves in the photograph, looked unaffected. Mr. Doyle stated that he saw the spotting on the open aspect of the apples consistently throughout the orchard. There was no spotting on the inner aspect of the apples, i.e. the part facing in towards the trunk of the tree.

**171.** Mr. Doyle stated that the spotting shown in photograph no. 2, was consistent and visible throughout the orchard. Again, there was a scorch mark visible on one leaf in the photograph, but the rest of the leaves appeared perfectly healthy. Accordingly, this did not concern him very much. The witness accepted that the apples could not be sold into the fresh fruit market due to the spotting on them.

**172.** Mr. Doyle stated that photograph no. 4 showed high trees throughout the orchard, which would have given considerable protection from spray drift to the apples. The witness was asked about the grass shown in photograph 4, which looked strong and was not desiccated. He stated that whether the grass would be desiccated, would depend on the type of herbicide. Spotlight Plus does not kill grass.

**173.** Mr. Doyle stated that he and the defendant spent about 1/1.5 hours in the orchard. The spotting was consistent throughout the area of the orchard that they walked. Such pattern of spotting was not consistent with it having been caused by spray drift; as normally one would get less spotting the further one moved from the area to which the herbicide had been applied.

**174.** Mr. Doyle stated that there was more spotting on the apples on the trees at the end of each of the rows. He also noted that the fruit was damaged in sheltered areas, such as behind the glasshouses. The damage was entirely consistent throughout the entire orchard.

**175.** Mr. Doyle stated that after that visit, they contacted Mr. Dermot Callaghan in Teagasc. He said that he did not have any experience in fruit examination. He suggested that they contact the facility at Kildalton. When they were contacted, they stated that they could not do the required testing. The defendant then contacted the National Fruit Advisory Service in Kent. A representative from the defendant company contacted FAST and spoke to Mr. Levett. He asked for more information as to what they had seen on their visit to the orchard. He also requested photographs and information about what herbicide had been used by the defendant. He requested samples of both damaged and undamaged fruit and leaves. These were sent to him.

**176.** Mr. Doyle stated that in February 2012, they received the report from Mr. Levett, along with the QTS Analytical report. They also obtained the CFAM report in February 2012. He stated that the initial QTS report had not shown any residue of Spotlight. The CFAM report was to investigate the possibility of calcium burn. FAST had sent the apples to Reading University for SEM analysis.

**177.** Mr. Doyle stated that they received Dr. Carew's report in July 2012. They had commissioned him to do that test. They had agreed the protocol for testing with FAST and the plaintiff. That report came to hand on 26th October 2012.

**178.** Mr. Doyle explained that the report from Dr. Carew came about because in April 2012, they had spoken with the plaintiff. They had shown him the reports that they had obtained. The plaintiff had not been happy with the results given in those reports. Accordingly, they had agreed to do further testing, to determine whether the damage to the apples could have been caused by the over application of calcium chloride. That had given rise to the tests carried out by Dr. Carew.

**179.** Mr. Doyle stated that in November 2012, they had had a meeting with the plaintiff, where they had discussed the findings made by Dr. Carew in his report. The witness stated that the defendant was satisfied, in light of the various reports that had been obtained, that the damage to the plaintiff's apples

had not been caused by spray drift from the herbicide, but was due to the over application of calcium chloride by the plaintiff to his orchard.

**180.** In cross-examination, Mr. Doyle stated that he could not comment on how long a residue of herbicide would remain on an apple. He was asked about his contact with Mr. Callaghan. He stated that his only contact was a phone call and an email. He accepted that Mr. Callaghan was an expert in the area of fruit growing. He is the current head of the horticultural division in Teagasc.

**181.** Mr. Doyle was questioned about his photographs. He accepted that there was no photograph specifically showing spotting on both open sides of the rows of trees. Nor was there any photograph showing the trees at the ends of the rows. He stated that the spotting on the leaves in the photos was not consistent with the spotting on the fruit. There was no speckling on the leaves.

**182.** He accepted that if there was damage caused to the holly bush and the hedge along the front of the plaintiff's property, it probably did not come from activities on the plaintiff's farm. However, he thought that that damage was not typical of herbicide damage, as it would desiccate the complete foliage. Referring to the plaintiff's photos on p. 13 & 14, he stated that if that had been caused by herbicide, there would be damage to all or most of the leaves. In relation to the damage shown on p. 17, that was a privet hedge, he thought that that damage might only be growth pattern due to dry conditions. In that photograph the leaves in the middle had spots, while at p. 10, the leaves on the left were fine. He accepted that some of the leaves shown on p. 18 were covered in spots, but he could not say if that was caused by herbicide. It was similar to that shown on p. 19. He accepted that if it was herbicide, it did not come from the plaintiff's garden.

**183.** The witness was asked about an email from Mr. Levett to Dr. Owen Doyle of 31st August 2021. It was put to the witness that on the internet, it was indicated that Mr. Levett was still available to give talks for charity; Mr. Doyle stated that he was surprised about that, because when he spoke to his son, he had said that his father was very ill; he had left the country and had retired. Mr. Doyle stated that he thought that Mr. Levett's position was as set out in his email of 31st August 2021.

**Evidence of Dr. Owen Doyle.**

**184.** In 1981, Dr. Doyle received the ACOT National Certificate in Horticulture from Kildalton College in Co Kilkenny. Between 1981 and 1985, he obtained a first-class honours degree in commercial horticulture from UCD. Between 1985 and 1990, he obtained his doctorate in plant pathology from UCD. From 2014 to date, he has been a chartered horticulturalist. He has been a Fellow of the Chartered

Institute of Horticulture for Great Britain and Ireland and is a former president of that body. He is a member of the Institute of Biology of Ireland and a member of the Irish Society of Plant Pathologists. He has written extensively in peer reviewed journals on a wide range of issues concerning horticulture and plant pathology.

**185.** The witness stated that he became involved in the case in August 2021, when he was contacted by Mr. Tony Doyle. He was asked to get in contact with Mr. Levett to see if he would give evidence in the case. He spoke to Mr. Levett on the phone in August 2021. Mr. Levett made it clear to him that he had been unwell and would not come to Ireland to give evidence. He subsequently spoke to Mr. Levett's son on 19 October 2023; at which time, he told the witness that his father had retired, he informed him of the university where his father had studied and what degree he had obtained. That confirmed his CV. He stated that he was not able to find any publications by Mr. Levett. Dr. Doyle stated that he also ascertained the qualifications for Dr. Carew, Dr. Stain and Prof Mitchell. He set out their relevant publications in his report. He was satisfied that they had the necessary expertise to carry out the significant high quality testing, as requested by Mr. Levett.

**186.** Dr. Doyle stated that the ORETO protocol governs the official recognition of efficacy trials on pesticides. In order to be recognised, an organisation has to prove that they have sufficient expertise, sufficient capacity and sufficient staffing to carry out the trials. For an organisation to be registered, is proof of competency. FAST was a registered organisation; so, it was recognised that they had sufficient expertise and capacity to carry out testing. Dr. Doyle stated that Mr. Levett's report relied on reports and analyses carried out by others; that was common in the industry. Mr. Levett had tried to explain a probable cause for the spotting found on the apples. He had brought up the issue of calcium chloride as being a possible source of the spotting. To assess that, they had commissioned tests from QTS and CFAM. From those tests, Mr. Levett had concluded that the damage to the plaintiff's fruit had not been caused by carfentrazone-ethyl, but had been caused by the over application of calcium chloride. He had based his conclusions on the analysis done by others.

**187.** When it became clear that Mr. Levett would not be available as a witness, Dr. Doyle had been asked to review the documentation. To that end, he had requested additional documents. He reviewed all the documentation in the case, including the Levett report and the appendices thereto, the additional documentation furnished to him and the Carew report. He was also asked to critique the test that had been carried out by Mr. Traas in 2013.

**188.** Dr. Doyle noted that Mr. Levett had sprayed the same concentration of Spotlight on the trial orchard in Kent. He found residue on those apples approximately 14 days later. Dr. Carew also confirmed those findings. Dr. Doyle stated that spraying the herbicide on green leaves would cause necrosis on the leaves. He stated that Mr. Levett had attempted to use the KOS protocol, which was a protocol widely used in plant pathology testing. It has separate stages: isolate sick tissue; inoculate into healthy tissue; see if it produces the same result as in the damaged tissue; then re-inoculate and re-isolate. He stated that Mr. Levett was had applied carfentrazone in the same concentration as had been used by the defendant. He noted that Dr. Carew's report had been commissioned because the plaintiff was not happy with the earlier test results. He stated that Dr. Carew's trial was an excellent trial from a scientific viewpoint.

**189.** Dr. Doyle was asked to comment on the photographs of the apples that had been taken following the Carew test. He stated that the top photograph on the left on p. 24, showed a heavily necrotic effect on the top of the apple, which indicated that spraying pesticide onto the apple tree would give generalised necrosis, not spotting. Dr. Carew had applied the pesticide at three different concentrations, at the percentage of 50%, 25% and 10% of what had been done by Mr. Levett, to see if he could produce the same effects on the apples. Dr. Doyle stated that from his reading of the reports, the absence of residues, or of large necrotic spots, were key to how Mr. Levett and Dr. Carew reached their conclusions.

**190.** Dr. Doyle also commented on the fact that there was only evidence of spotting or necrosis on the fruit, but not on the leaves. There was no sign of any necrosis on the leaves in the photographs taken by Tony Doyle, to the extent that he would have expected if a desiccant had been applied to them. Referring to photo no. 1 taken by Mr. Tony Doyle, he noted that there was one area of necrosis on one leaf, but the rest of the leaves in the photograph appeared to be normal. The main damage shown was in the form of spotting on the fruit. He stated that he could not draw any conclusion from the photograph, as to what had caused the necrosis shown on the leaf, or the fruit. It would be necessary to carry out testing to determine if the necrosis seen in the photograph, was caused by a disease, or by the application of material to them.

**191.** Dr. Doyle emphasised that one could not make a definitive pathological diagnosis in the field, or from viewing a photograph. It is necessary to record observations; take relevant photographs; take relevant samples; do tests on them; and it is only when all of that has been done, that one can make a

determination of the probable cause of the damage to the fruit or leaves.

**192.** Dr. Doyle pointed out that in the photographs, one could see symptoms, but that was all that the photograph could tell you. It would be necessary to do testing to find a probable cause for the symptoms, which could be due to insect damage, a virus, a fungus, or the application of herbicide. A photograph will tell you nothing about the cause of the symptoms shown in it. Spotting, lesions and necrosis, were all symptoms, but they were not determinative of probable cause. Accordingly, photographs were of very limited value in reaching a determination as to the probable cause of what was shown in them.

**193.** Dr. Doyle went on to discuss the nature of desiccants. He stated that they are a contact herbicide, which will kill a plant on contact. If the plant is sprayed with the herbicide, one would normally expect to get an overall necrotic lesion. Mr. Levett and Dr. Carew got that result in their tests. Whereas, from the photographs of the plaintiff's farm, there were discrete spots on the apples; so there were observable differences between the two results.

**194.** Dr. Doyle commented in general terms on the pattern of damage that one would expect to find from spray drift. If that was the cause of the damage, one would expect the damage to be more severe nearer the source of the spray drift, with a reduction in severity, the greater the distance one went from the source.

**195.** Dr. Doyle noted that in this case, it had been reported by the defendant and his witnesses, that the damage to the apples was uniform throughout the orchard. He stated that that was not consistent with the damage having been caused by spray drift. He stated that in addition to the pattern of decreasing severity as one moved from the source; with spray drift, one would also expect less damage in an area where the fruit trees were protected by some form of barrier, or impediment. He noted that in this case, there were shelter belts throughout the orchard, which had trees that were some 25m in height. There was also a tall hedge and a smaller hedgerow along the boundary of the potato field. Dr. Doyle stated that he would expect higher concentrations of impact where there were gaps in the protective barriers. He noted that the orchard was approximately 180m back from the potato field. If spray drift had been the cause of the damage to the apples in the orchard, he would have expected a variable pattern of effect on the apples.

**196.** Dr. Doyle stated that the desiccant damage should have been visible on the young leaves of the trees in the natural shelter belts. By reference to the plaintiff's photograph on p. 5, he noted that the

trees were substantial and tall. They appeared to be fairly mature. In the photograph on p. 4, one could see the tree line in the centre of the photo, behind which, there were two paddocks and beyond that, the rows of fruit trees. He stated that he would not speculate whether spray drift would go to the orchard, but one would expect considerably less damage on the fruit trees that were protected by the trees and the paddock. He noted that in photo on p. 7, the hedgerow was depicted, which appeared to be quite high, by reference to the people shown in the photograph.

**197.** Dr. Doyle stated that there were glasshouses on the property, with the orchard behind them. He would have expected considerably less symptoms on the apples on those trees, because the glasshouse was a solid structure. The glasshouses were shown in photos on p. 9 &10; they seemed of fairly old construction and were quite long.

**198.** Dr. Doyle stated that the hedge shown in the photo on p. 11, looked like a privet hedge. There was nothing obvious to be seen on it. He pointed out that at the bottom of the wall, it appeared that the strip of grass had been killed off, possibly by the application of a herbicide. This was also evident in the photo on p. 12. He stated that the leaves in the lower photograph on p. 13 had evidence of necrotic spots and necrosis. That was a deciduous tree, which meant that in the month of September, it would be starting the pruritic stage. That was a possible cause for the damage seen in that photo. In the top photograph on that page, the holly tree appeared fairly healthy. In the photo on p. 23, on the top, there were spotting and necrotic lesions. The spotting appeared to be at the top of the fruit and running down onto the lower part of the apple. Most of the damage appeared to be on the top and on the side facing out. On the photo on p. 31, some apples had numerous spots, whereas others, had less spotting and some had none at all.

**199.** Dr. Doyle emphasised that while there was some chlorosis and necrosis on the leaves in some of the photographs, he could not speculate on the cause of these conditions. The photographs merely recorded the symptoms. He stated that it was Mr. Levett who came up with the calcium chloride theory, and as a result, did nutrient analysis. Dr. Doyle noted that Stoppit had been applied to the orchard on three occasions in 2011. He was not in a position to comment on Mr. Levett's theory in relation to the over application of calcium chloride. However, he could state that the tests carried out showed that there was a higher level of calcium in the damaged areas, than in the undamaged areas of the apples. The data from Dr. Stain and Prof Mitchell, supported that theory. He accepted that Mr. Levett had more experience than him in the apple industry and as a grower and as an adviser on apples. He would not

be in a position to argue against the conclusions that he had reached. He was satisfied that Mr. Levett had used appropriate studies and had based his conclusion on his experience of seeing calcium damage before.

**200.** Dr. Doyle was asked to give his opinion on the test carried out by Mr. Traas in 2013. He criticised the methodology used by Mr. Traas in a number of ways. First, while Mr. Traas had attended at the plaintiff's farm in 2011, he had not taken any photographs of what he had found in the orchard; he had not made notes; he had not seen the plaintiff's spray records; nor had he taken any samples from the orchard. Dr. Doyle stated that these were all material, if he was to ascertain the cause of damage to the apples and to eliminate other possible causes.

**201.** He was also critical of the test carried out by Mr. Traas in 2013. He stated that from the report produced, it was obvious that Mr. Traas had started from a biased position, because he was basing his test on "knowing what had happened on the farm". Accordingly, it appeared that he was devising the test in an effort to prove the theory which he had, which was to the effect that the damage to the plaintiff's apples had been caused by spray drift of carfentrazone-ethyl.

**202.** He stated that the test was biased in design, because Mr. Traas had only used one concentration of the herbicide, being a concentration of 2%, in an effort to replicate the effect of spray drift on apples. He stated that if the test was to be done on a scientific basis, he ought to have used concentrations of 10%, 8%, 4%, and 2% in the trial. Secondly, Dr. Doyle was critical of the fact that Mr. Traas had not applied an equivalent amount of water to the control apples. He stated that it was necessary to do that, so as to ensure that the only difference between the treated apples and the control sample, was one variable, being carfentrazone. Because Mr. Traas had not applied an equivalent amount of water to the control sample, he could not eliminate the possibility that the damage found on the tested apples, had been caused, or contributed to, by water.

**203.** Dr. Doyle also noted that when the treated apples in the test carried out by Mr. Traas, produced symptoms that were different to those shown in the photographs taken by Mr. Tony Doyle, Mr. Traas had attempted to explain away these differences by speculating that the differences could be explained by variable factors, such as the fruit in each case being at different stages of maturity; different weather conditions; differences in the amount of sunlight and differences in the concentration of the herbicide applied to the fruit.

**204.** Dr. Doyle stood over his opinion of the Traas test as one that was replete with assumptions,

guesstimates and speculation. He had made an assumption in relation to the appropriate concentration of the herbicide and therefore had proceeded with an application at only one concentration of herbicide. That concentration of herbicide was based purely on his guesstimate of the likely level of herbicide that might be found in spray drift. When the results that his tests produced were found to be different to the results seen on the farm in September 2011, he had resorted to speculation in an effort to explain these differences.

**205.** Dr. Doyle was also critical of the fact that Mr. Traas had not done any residue degradation study. It seemed to be assumed by Mr. Traas that carfentrazone-ethyl had a short half-life. However, a review of the literature undertaken by Dr. Doyle, had established that there was a wide range of possible half-life of carfentrazone, depending upon the material to which it was applied. This ranged from a number of hours, to days, and even to months. Some tests had shown that residues of carfentrazone could be detected up to 60 days after application, when applied to a field of wheat. What was not known, was the half-life of the herbicide when applied to apples. He stated that Mr. Traas had been provided with an ideal opportunity to do a residue degradation study, showing the amount of residue that would be present at various time intervals after application and at various concentrations. However, he had not done any such study. Mr. Levett had done a trial in which he could detect residues from a full rate application of the herbicide, 13 days after application. In summary, Dr. Doyle stated that given the limitations and flaws in the test is carried out by Mr. Traas, he believed the test carried out in 2013 did not produce any scientifically valuable evidence.

**206.** Dr. Doyle was asked to comment on the evidence given by Dr. Mac an tSaoir. He noted that, like him, he had come into the case 10 years after the event. For the reasons outlined earlier, he had concern about the accuracy of the evidence given by Dr. Mac an tSaoir that carfentrazone deteriorates quickly. Research done by the EU had established that it could have a variable half-life.

**207.** He pointed out that Dr. Mac an tSaoir had given an opinion, but he had not done any tests. He had commenced his evidence by saying that the symptoms "may" be caused by herbicide damage; however, by the end of his evidence, in relation to what he had seen in the photographs taken at the time, he said that it was "likely" to have been caused by the herbicide. Dr. Doyle stated that it was not possible to come to a conclusion as to the probable cause of the damage to the apples from looking at the photos.

**208.** In relation to the evidence given by Mr. Callaghan, he stated that it was not possible to give a

diagnosis in the field, based on what one saw there. He accepted that Mr. Callaghan had produced a report on what he had seen, which was of some value.

**209.** Dr. Doyle stated that if he had been asked to investigate the matter initially, he would have taken photographs and samples from the hedgerow along the road, and from the shrubs in the garden and from the apples in the orchard. He would have geo-located each of the photographs, so that it could be ascertained in which portion of the orchard each had been taken. None of that had been done here. One would then have to do scientific tests on the samples that were obtained from different locations throughout the property. He reiterated that it would be dangerous to rely on the evidence given in the photographs alone, when there was no scientific evidence showing any connection between the symptoms evident on the apples and the spraying of the field with herbicide on 10 September 2011.

**210.** Referring to the photograph showing the two sprayers in the field, he noted that some witnesses on behalf of the plaintiff had stated that the sprayer on the left appeared to have spray drift behind it. He stated that that was not correct. There is only spray drift when a material alights on to a non-target area. Thus, the spray and the plume of mist behind it, were still on the potato field and therefore did not constitute spray drift.

**211.** Finally, in relation to the hazard symbols appearing on the label attached to the herbicide, he stated that the hazard symbols thereon were common to all herbicides. There was nothing particularly dangerous or harmful to the environment about carfentrazone-ethyl. He handed in a number of sample labels from other products, which contained similar hazard symbols.

**212.** In cross-examination, Dr. Doyle confirmed that he had retired from teaching and research in UCD since February 2022. He was still engaged in consultancy work through his company, Biologic Ltd. He had initially been retained by the defendant to attempt to contact Mr. Levett. He had done that and had reported back the content of his conversations with Mr. Levett and his son. Thereafter, he had been asked to review the scientific evidence in the case and comment on the scientific evidence put forward on behalf of the plaintiff. He had also carried out research into the experience and qualifications of the various people who had contributed to the Levett report.

**213.** He accepted that, while he had written over 200 articles, they mostly dealt with aspects of fungi. He accepted that he was not a pomologist. He was asked whether he had reached the conclusion that carfentrazone-ethyl had not caused the symptoms on the plaintiff's apples; he stated that he had not reached that conclusion, but had stated that there was no scientific evidence to argue that it had caused

the damage. He stated that as he had not examined the subject apples, he could not comment on the causation of the spots on the apples, as shown in the photographs taken in 2011. He was of the view that such scientific investigations as had been carried out, did not support the theory that the damage had been caused definitively by carfentrazone. He stated that he was aware that the standard of proof in a civil case was the "balance of probability", but the word "probability" was important, it meant that the conclusion could not be based on a mere possibility.

**214.** He stated that Mr. Levett had attempted to follow the KOS principles, which stated that one should isolate, inoculate, re-isolate, and re-inoculate. He accepted that Mr. Levett's procedure was somewhat incomplete, but he had tried to follow those principles as best he could. He had attempted to replicate the symptoms. He had commissioned a range of tests with that aim in mind. Based on the tests that he had commissioned and the results thereof, and based on his experience as an apple grower and adviser, he had reached the view that the spots shown on the photographs were probably caused by the over application of calcium chloride. Dr. Doyle stated that he could not comment on that conclusion, as he was not a pomologist.

**215.** Dr. Doyle stated that he had tried to obtain the services of a pomologist in Europe and the US; however, nobody was prepared to act in the case. He accepted that there were pomologists in Ireland. He accepted that Prof Hosein in UCD was a pomologist.

**216.** He stated that he was not in a position to comment on the dangers of spraying on a very windy day, as he was not an expert in the spraying of crops. He noted that the weather data came from a weather station which was some 14 km from the site. It was put to the witness that it was dangerous to spray a herbicide on a very windy day; he accepted that proposition.

**217.** He stated that the spraying of herbicide, as carried out in the tests commissioned on behalf of the defendant, had been applied using a knapsack sprayer to direct the chemical directly onto the fruit. He accepted that spray drift was different, in that it concerned the transmission of droplets in the air.

**218.** Dr. Doyle stated that as a pathologist, one had to look for probable cause. It could be biological, insect related, nutritional, or viral. Each of these possible causes would have to be dismissed, before one could establish a probable cause. There are three components to causality. They are temporal precedence; covariance; and dismissal of other possible causes. Mr. Levett had given the opinion that the damage was due to calcium chloride. He accepted that Mr. Traas and Mr. Callaghan had stated in evidence that they had never seen calcium damage before on fruit. He accepted the evidence given by

Dr. Mac an tSaoir, that if there was damage caused by the over application of calcium chloride, one would expect extensive leaf damage, as well as damage to the fruit.

**219.** He stated that his evidence was that the scientific evidence produced in the case, had not established that the damage was caused by the herbicide. He stated that he had not seen the photographs taken by Mr. Tracey when he furnished his report. He had seen them prior to giving his evidence.

**220.** Dr. Doyle was asked about the photographs that had been taken by Mr. Tracey. He stated that the bottom photograph on p. 13 showed evidence on the leaves of dieback and of chlorotic loss, which was a lack of chlorophyll. Similarly, in the photographs on p. 15, there was evidence of necrotic and chlorotic areas, which were similar also to the top photograph on p. 17. There was also similar evidence on the photos of the holly leaves on p. 18 and 19.

**221.** In the photos on p. 23, there was evidence of local necrotic areas on the fruit. He stated that there was agreement on the symptoms that were shown in the photographs, but it was not possible to comment on the cause of those symptoms by simply looking at the photographs. In photo 1 taken by Mr. Doyle, there were necrotic and chlorotic spots on the leaves and at the tips of the leaves.

**222.** In relation to the table given at p. 7 in the Levett report, Dr. Mac an tSaoir had said that it was not possible to have 0% calcium in an apple; Dr. Doyle agreed with that statement. It was put to the witness that in the Kent Jonagold apples, which were recorded at 0.05 – 0.084 levels of calcium, that indicated that the calcium was more in the undamaged part and that that was unusual; Dr. Doyle stated that it was not unusual, because it depended on the type of damage and when the damage happened. He could not say that those findings were unusual. He could not draw any inferences from them.

**223.** It was put to the witness that a variation of up to 15% in calcium levels was not unusual in an apple, Dr. Doyle stated that he could not comment on that. Dr. Doyle was asked about the evidence given by Mr. Callaghan. He stated that he had high regard for Mr. Callaghan. He accepted the observations that he had made in relation to what he saw when he visited the orchard, but it was not possible to make a diagnosis as to the cause of the symptoms based on observation. He accepted that Mr. Callaghan had stated that there was less damage on the trees behind the glasshouses. He accepted that Mr. Callaghan had stated that he did not see evidence of calcium damage in the orchard. He could not comment on that, as he had not been in the orchard. Insofar as Mr. Callaghan had stated that if there was damage caused by calcium chloride, he would have expected the entire leaf to have had

scorching; Dr. Doyle stated that he could not comment on that, because he has not seen calcium damage on apple trees before.

**224.** It was put to the witness that the photographs showed clear visible damage of desiccant damage on the leaves; Dr. Doyle reiterated that while the photographs showed symptoms on the apples, he could not draw an inference from them as to the cause of those symptoms. It was put to the witness that the photos showing necrosis of the leaves, constituted visible damage from a desiccant; Dr. Doyle stated that the jump from the damage was "probably caused by a desiccant", from "it could have been caused by a desiccant", was a large jump. He could not give a definitive opinion as to the cause of the damage shown in the photographs. In particular, in relation to the damage shown on the hedge and on the holly bush, it would be necessary to know what herbicide had been used in the garden. He could not say that it constituted visible damage from a desiccant, from viewing the photographs.

**225.** It was put to the witness that Mr. Callaghan had stated that the damage was predominantly on the windward side of the apple trees, Dr. Doyle stated that that was Mr. Callaghan's observation. The plaintiff's theory was that the damage had been caused by spray drift, but there was no evidence that that had occurred. Spray damage from a desiccant, would normally cause large necrotic lesions, but if it was from spray drift, the symptoms might be different; but it was not known what they would be. He had not seen any validated scientific evidence, showing the causal link between the spots on the plaintiff's apples and spray drift from herbicide.

**226.** It was put to the witness that if the damage was to the windward side of the apples, this tended to indicate that it had been caused by spray drift; Dr. Doyle stated that if they had done a residue analysis and geo-located photographs, then one could make a diagnosis of the causal link. To establish a probable cause, it needed data following validated testing.

**227.** Dr. Doyle accepted that it was stated by the manufacturer that the herbicide was a short lived chemical, but that was not accurate. He stated that the EU literature showed a variable half-life, depending on the recipient material. The authors of that opinion suspected from that, that the chemical persisted in the environment longer than had been represented by the manufacturer. It was put to the witness that trials in the US on apples and pears, had revealed that there was no residue on the fruit after three days; Dr. Doyle stated that he had looked at over 220 papers on carfentrazone and residues. Some of these stated that the half-life was a matter of hours; others stated it was days or weeks, even up to 60 days in certain soil conditions. It was put to the witness that the tests carried out had

established that on apples and pears, carfentrazone had a short half-life.; he disagreed, as the literature established that the half-life could be quite variable.

**228.** The witness was asked how long it would take for the damage to appear on the apples, if that damage had been caused by an over application of calcium chloride. Dr. Doyle stated that he could not give a definitive answer to that question. He stated that Mr. Levett was of the opinion that the damage looked like calcium damage, so he had commissioned Dr. Stain and Prof Mitchell to assess calcium levels, to support his theory. Based on their results, he came to a conclusion as to the likely cause, which was based on his experience of apples.

**229.** It was put to the witness that the last application of calcium chloride to the orchard had occurred on 17 August 2011; the defendant had sprayed his field on 10 September 2011; and the damage was evident on 17 September 2011; which meant that the application of the calcium had occurred 44 days before the damage became evident; it was put to the witness that a lag time of 44 days between application of calcium and the onset of damage, indicated that the calcium was unlikely to have been the cause of the damage to the apples; Dr. Doyle stated that he could not comment on that hypothesis.

**230.** Dr. Doyle confirmed that he had not spoken to the operator of the sprayer, Mr. Hogan, as it was accepted by the defendant that spraying of the field had occurred on 10 September 2011. The question he had to consider was whether one could prove the link between the spraying of the potatoes and the onset of the symptoms on the apples. He stated that there was no scientific data to establish that.

**The Defendant's Scientific Reports.**

**231.** The reports furnished by Mr. Levett and Dr. Carew were admitted in evidence without formal proof. As were the test reports and results from QTS and CFAM, which had been commissioned by Mr. Levett. However, the plaintiff did not accept the content of any of these reports. The court has had regard to the entirety of these reports in forming its conclusions herein. As these reports were admitted in evidence, it is not necessary to set out an exhaustive summary of them; a brief summary of their main conclusions will suffice.

**232.** Although undated, it was accepted that the report from Mr. Chris Levett was furnished in or about February 2012. In the report, the author stated that he had 30 years experience in growing and advising on over 4000 ha of top fruit and 2500 ha of soft fruit. He stated that the Farm Advisory Services Team (FAST) was the U.K.’s leading independent advisory service for top and soft fruit growers. FAST

has its own laboratories for mineral analysis.

**233.** He noted that the plaintiff's orchard covered 32 ha of apples, consisting of 28 ha of Bramley apples, with the remainder being Jonaprince, with Elstar and Golden Delicious pollinators. He noted that on 10 September 2011, the defendant had applied Spotlight Plus at a rate of 1 L per hectare. That application rate was consistent with the approval and label recommendations for the product. The herbicide was applied using a Syngenta nozzle numbers 4 and 5.

**234.** He stated that it was reported that the weather conditions, as recorded at Dublin Airport on that date, showed a wind speed of 16.7 knots from the south-east, gusting to 39 knots. The wind direction changed to the south-west at approximately 10:00 hours. Mr. Levett stated that samples of the Bramley apples and leaves, and the Jonaprince apples, were sent by the defendant to him for examination and analysis. The damage to the Bramley apples consisted of discrete brown necrotic spots over the surface of the fruit. On closer examination, it was evident that only one side of the apples showed damage. Mr. Levett stated that in relation to the Bramley leaves from the affected orchard, which were sent with the damaged fruit, there was no visible damage on any of the leaves.

**235.** Mr. Levett outlined how he used a number of samples for the determination of the cause of the damage, as follows: Irish Bramley apples, both damaged and undamaged: Irish Bramley leaves; Irish Jonaprince fruits, damaged and undamaged: and Kent Jonagold fruits, damaged and undamaged.

**236.** To determine whether the herbicide, Spotlight Plus, had caused the damage, samples of damaged Bramley apples and leaves were sent to an independent accredited laboratory, QTS Analytical Ltd, for determination of residues of Spotlight plus. The analysis was carried out on both damaged and undamaged areas of the fruit for comparison. The leaves were also analysed for residues of the herbicide. He gave the results in a tabular form. In all cases the level of carfentrazone – ethyl was below the reporting level of 0.01 mg/kg.

**237.** In order to ascertain whether the herbicide could be detected on Bramley apples that had been sprayed with it, commercial Bramley trees in Kent were sprayed with Spotlight Plus, at the same concentration as had been applied to the potato field. After two weeks, no visible damage to the leaves, or the fruit was seen. Samples of the leaves and fruits were then sent to QTS on 29 November 2011 for analysis of the leaves and fruit for Spotlight plus residues. The results of the tests carried out by QTS, revealed that the herbicide was able to be detected on both the leaves and the fruits of the Kent Bramley trees, two weeks after application.

**238.** Mr. Levett went on to state that the damage to both leaves and fruit could be caused by applications of foliar nutrients. The most common nutrient that causes damage to the skin of fruit is calcium chloride. Under some circumstances, the leaves can also be damaged, but this was uncommon. He considered that the damage to the Irish fruit may have been caused by the application of calcium chloride. He had been provided with a copy of the plaintiff's spray records for 2011. He confirmed that calcium chloride had been applied to the orchard. The product, Stoppit, that had been applied by the plaintiff, contained 160G/L calcium chloride. The last recorded application to the orchard was on 17 August 2011, at a rate of 10 L/1000 L of water applied at 400 L/HA. The rate of 4L/HA in 400 L/HA, was within the label recommendations. The label advised that application of the nutrient should be avoided in the following circumstances: under extremes of climate; in extremely slow drying conditions; in frost or rain; or when frost or rain are anticipated.

**239.** Mr. Levett went on to deal with the analysis that had been carried out in respect of the presence of calcium in the Irish fruit. To determine if calcium was the cause of the damage to the fruit, the Irish Bramley apples were analysed by FAST for calcium levels in the damaged areas and compared to the undamaged areas. He gave the results of their tests in tabular form. The damaged areas of the Bramley apples showed an increased level of calcium of 15.2% over the undamaged areas.

**240.** Mr. Levett noted that similar damage, as seen on the Irish Bramley apples, had also been seen on the Jonagold fruits on a commercial farm in Kent. It was known that the Kent Jonagold had been damaged by calcium chloride spray. The damage to the Kent fruit occurred after application of calcium chloride containing 160 gms/ltr applied at a rate of 4kg/ha. The application was made one month earlier than the Irish Jonaprince and as a result, the damage on the Kent Jonagold had become more pronounced. There was no visible damage to the leaves on the Kent Jonagold trees.

**241.** Mr. Levett stated that as a result of the very similar damage that had occurred to the Kent Jonagold apples, to that of the Irish Bramley apples, Jonagold apples were analysed for calcium. Tissue analyses for calcium from both the Irish Bramley and Kent Jonagold fruit was conducted at the FAST laboratories. Calcium levels from both the damaged and undamaged areas of the fruits were determined. The Kent Jonagold showed 70% higher calcium levels in the damaged areas, than in the undamaged areas. The Irish Bramley apples also showed increased calcium levels, but to a lower percentage. The results were set out in tabular form, which showed that in the Irish apples the undamaged parts had a reading of 20 mg/300g fresh weight, while the damaged area had approximately 24 mg/300g. The Kent

apples showed a reading of 15 mg/300g for the undamaged area and approximately 26 mg/300g for the damaged areas.

**242.** Mr. Levett went on to state that because the tissue analysis showed increased levels of calcium in both the damaged Irish Bramley apples and in the Kent Jonagold apples, an instruction was received to investigate this further using scanning electron microscopy (SEM). This was done at Reading University by Dr. Chris Stain, under the supervision of Prof Geoffrey Mitchell. Three Irish Jonaprince apples and three Kent Jonagold apples were sent for analysis. SEM testing was used to determine the levels of calcium in the Irish apples and in the Kent apples. Damaged areas were compared with undamaged areas. Details of the procedures and techniques used were set out in a report furnished by Reading University. The results of the SEM analysis expressed as percentage by weight, were set out in tabular format. The increase in calcium levels was expressed as a percentage of the undamaged area. The results showed an average calcium level of 0.1% by weight in the damaged Irish Jonaprince apples and 0.073% by weight in the damaged Kent Jonagold apples. It was known that the Kent Jonagold apples were damaged at 0.073% calcium by weight.

**243.** Mr. Levett gave the following Summary and conclusions in his report:

"*Summary*

*1. The affected orchard covers 32 ha of apples and consists of twenty 8 ha of Bramley with the remainder Jonaprince, with Elstar star and Golden Delicious pollinators. It was reported that the damage was spread evenly over the whole 28 ha. It is alleged that the application of Spotlight Plus to the potato crop caused the damage to the apples. The damage to the Irish Bramley and Jonaprince apples was very similar to that seen on the Jonagold apples in Kent.*

*2. Carfentrazone–ethyl (Spotlight Plus) was applied at 1 L/ha in 200 L of water/HA to a field of potatoes close to the apple orchard. The orchard is 150 m away from the field of potatoes and is separated by a road, a line of trees and an approximately 12 metre wide paddock.*

*3. The results of the analysis for Carfentrazone-ethyl (Spotlight Plus) on the Bramley leaves and fruit showed no detectable level in any tissue from leaves or fruit from Ireland, but was detected on both Bramley leaves and fruit from the Kent orchard treated with Spotlight Plus. The levels detected on the Kent fruits were above the maximum residue limit (MRL).*

*4. The damage on the Irish fruits was predominantly on one side of the apple. This was also the case with damage caused by calcium sprays on the Kent Jonaprince apples.*

*5. The results of the fruit analysis showed that calcium levels were 15% higher in the damaged areas of the Irish Bramley fruits than in the undamaged areas.*

*6. In a sample of Jonagold apples from Kent, known to be damaged by a spray of calcium chloride, the results showed an average of 36.6% increase in calcium levels in the damaged areas of the Irish Jonaprince apples in comparison to the damaged areas of the Kent Jonagold apples.*

*Conclusions.*

*1. 32 ha of orchards is a considerable size block of fruit.*

*2. Over a large block of fruit such as this, it is inconceivable that damage caused by spray drift would occur evenly over the 32 ha of orchard. Any spray drift damage would be greater on the fruit close to the 'Spotlight Plus' treated potato field and then become progressively less, the further away from the treated area. Damage would also have only occurred on the windward side of the tree as the spray was transported in the direction of the wind. It was reported that fruit from all parts of the tree were affected. This indicates that the damage could not have been caused by drift from Spotlight Plus.*

*3. With the damage confined to one side of the fruits examined, and the damage spread evenly over the 32 ha of orchard, this indicates that it was caused by spray applied to the orchard and not from drift.*

*4. With no detectable residue of carfentrazone-ethyl on either the Irish Bramley leaves or the fruits, but clearly detectable residues above the RL limit on both the Kent treated Bramley leaves and the fruit, this indicates that the damage on the Irish fruit could not have been caused by spray drift from Spotlight Plus.*

*5. With an increase of over 36% in calcium levels in the damaged areas of the Irish Jonaprince fruits in comparison to the Kent Jonagold known to be damaged by calcium spray, my conclusion is that the damage to both Bramley and Jonaprince to be from applications of calcium chloride to the orchard and not from the spray damage from drift from the Spotlight Plus application to the potatoes."*

**244.** It is not necessary to summarise the content of the reports furnished by CFAM and QTS, as the results of those tests, were incorporated into the Levett report and were relied upon by the author of that report in reaching his conclusions. The results of that testing have been sufficiently summarised above, in the summary of the Levett report.

**245.** After the Levett report had come to hand and after it had been discussed with the plaintiff, it was agreed that further testing would be carried out. This was carried out by Dr. Carew in the latter part of 2012. Unfortunately, his report is neither dated, nor signed.

**246.** The purpose of the testing carried out by Dr. Carew, was to determine the phytotoxic effect of the application volume of Spotlight on Bramley apples and the nature of any phytotoxic effects observed. To that end, Dr. Carew made four different samples; the first being an untreated control sample; and three further samples to which different concentrations of the herbicide were applied at 20 l/ha, 50 l/ha, and 100 l/ha.

**247.** The herbicide was applied using a motorised knapsack sprayer (a Stihl model 450) calibrated to give a known quantity of water applied per second. The volume of herbicide required was then applied to each of the four plots of trees. The application of the herbicide was carried out on 31 August 2012, between 11:00 hours and 12.30 hours.

**248.** Two weeks following the application of the herbicide, the fruit was assessed for phytotoxic effects under the headings: leaf discolouration & fruit discolouration. Weather conditions were recorded using a weather station situated at the trial site for the week before the day of application and the week thereafter.

**249.** The results revealed that in the Spotlight treated samples, all fruit showed a general browning on the fruit surface, consistent with herbicide application. The browning was more severe the greater the application rates. Dr. Carew set out the results in tabular form in a range from 0.24. on the fruit to which the herbicide had been applied at a rate of 20 l/ha, which came in at just over 3.2; to the fruit at 50 l/ha application rate showed a result of 3.4, and on that with the application rate of 100 l/ha, the score was 3.5.

**250.** In relation to the leaf phytotoxicity scores, Dr. Carew noted that there was a very clear effect of treatment on the leaves. The symptom of damage was a general browning of the leaf laminate. There was a general increase in severity whereby the damage caused the leak to become necrotic. The damage was most severe on younger leaves, near the shoot tips. Again, the level of damage was scored on a scale of 1 to 4, whereby one represented the leaf having no damage. The control sample had a score of approximately 1.01, at 20 l/ha the score was 1.75 approximately, at 50 l/ha the score was 1.85; and at 100 l/ha it was 1.87.

**251.** Dr. Carew also furnished by way of an appendix to his report, photographs showing the

phototoxicity damage to the fruit and leaves. These were presented to demonstrate the type of damage seen on the leaves and on fruit, on the application of Spotlight at the three application water volumes. The leaves showed chlorosis and necrosis of the whole leaf laminate, predominantly on the younger leaves at the shoot tips. This developed from a consistent browning of the leaf surface, into more severe examples, where the leaf was scorched and desiccated.

**252.** The damage to the fruit was also clear. In the treated plots, the majority of fruit showed a general browning to the fruit surface, consistent with herbicide application. There were some fruit where clearly the product did not hit part of the fruit and therefore only half the fruit showed the discolouration. The type of damage was the same in each treatment, although the severity differed depending on application volume. He also included photographs of the leaves and fruit in the control sample, which showed that the damage described above was limited to those trees to which the Spotlight had been applied. In appendix 2 to the report, he set out the weather data from the weather station situated 150 M from the trial site, for the period 20 August 2012 to 30 September 2012.

**The Defendant's Motion to Strike Out the Action on Grounds of Delay.**

**253.** At the commencement of the hearing of the action, it was indicated to the court that the defendant had a motion to strike out the plaintiff's action against him on grounds of delay and want of prosecution. It was agreed between the parties that it would be appropriate for consideration of that motion to be held over until the conclusion of all the evidence in the action.

**254.** Accordingly, at the conclusion of the evidence, counsel on behalf of the defendants, Mr. Rogers SC, moved his application to strike out the action against the defendants on grounds of delay. In essence, it was argued on behalf of the defendants that the plaintiff had been guilty of inordinate delay in the prosecution of its claim against them. In particular, the defendant stated that there were two periods of significant delay, being pre-commencement delay of approximately two years, between the date of the events complained of in September 2011 and the issuance of the plenary summons on 18 October 2013.

**255.** The second period of delay were said to have occurred in the period 2015 to 2017, when it is alleged that no substantive steps were taken at all by the plaintiff to progress the action.

**256.** Thirdly, it was submitted that the court should have regard to the fact that there had been an inordinate delay in bringing the action on for hearing, such that the court was being asked in 2023, to decide issues of causation in relation to an event that was alleged to have occurred in September 2011.

It was submitted that a period of 12 years to bring on a claim that was not overly complex, was grossly inordinate.

**257.** The defendant submitted that the effect of this delay on the part of the plaintiff to bring its action on for hearing, had caused significant prejudice to the defendant in the conduct of his defence, insofar as he had lost his primary scientific witness, Mr. Levett, who had retired in or about 2015 and was not in a position to give evidence on behalf of the defendant in 2023. It was submitted that efforts had been made to obtain his services. To that end, contact had been made by Dr. Doyle with both Mr. Levett and with his son. The evidence in relation to that contact has been set out above. Despite these requests, it was made abundantly clear to Dr. Doyle, that Mr. Levett would not be available to come to Ireland to give evidence on behalf of the defendant.

**258.** It was submitted that that state of affairs, was accepted by the plaintiff, because in February 2022, the plaintiff's solicitor accepted that Mr. Levett was not available to be called as a witness by the defendant and on that account, agreed to the admission of his report in evidence, without agreeing the content of that report. It was submitted that insofar as Mr. Hayes had attempted to resile from that position in his third affidavit sworn on 14 November 2023, to suggest that Mr. Levett was available to undertake speaking engagements and therefore should be available to be called as a witness; it was not permissible for him to resile from the position that he had taken on behalf of his client in February 2022. Furthermore, it was submitted that it was clear from the website, that Mr. Levett was making himself available to give talks at garden parties and other similar occasions, where he nominated a very modest fee, which was to be paid to charity. It was submitted that that was very far short of suggesting that he was engaged in gainful employment as an expert witness.

**259.** It was submitted that in these circumstances, where there had been inordinate and inexcusable delay and where that had caused significant prejudice to the defendant, who had been deprived of the use of his main scientific expert witness and had not been able to obtain the services of an alternative pomologist, the case law was clear, that in these circumstances the plaintiff's action should be struck out against the defendant on grounds of delay and want of prosecution. In this regard, counsel relied on the decision in *Cave Projects Ltd v. Gilhooley & Others* [2022] IECA 245, at paras. 36 & 37.

**260.** On behalf of the plaintiff, Mr. Kennedy SC submitted that there had not been any pre-commencement delay on the part of the plaintiff in instituting the proceedings. While it had taken two years before the proceedings were issued, that had to be viewed in light of the fact that the proceedings

themselves had been issued well within the statutory limitation period of six years. Secondly, given that this was an unusual case, that was not similar to a standard RTA or slip and fall action, and where the plaintiff had engaged with the defendant in a reasonable way after the event and throughout the following year, it was not unreasonable that the action had not commenced until issuance of the plenary summons on 18 October 2013. In addition, it was submitted that part of that period was due to the fact that the insurers, who were then acting on behalf of the defendants, had written on 15 August 2013, indicating that their investigations were ongoing and that they would revert in due course. It was submitted that it was reasonable to allow them time to carry out their investigations in relation to liability and indemnity.

**261.** It was submitted that after the proceedings had commenced, there was no undue delay. The solicitors who had originally acted for the first defendant made early contact with the plaintiff's solicitor upon receipt of the proceedings, indicating that the second defendant should be named as a defendant, as it was the insured entity. By order dated 30 April 2014, the second defendant was joined to the proceedings. An amended plenary summons was served on the defendants in May 2014. Thereafter, a statement of claim was delivered on 9 December 2014.

**262.** It was necessary for the plaintiff's solicitor to issue a motion for judgment in default of defence, which resulted in an order being made on 22 June 2015, directing the defendant to deliver his defence within three weeks. The defence was not delivered until 5 August 2015. The defendant raised a notice for particulars on 5 August 2015, which was replied to on 22 October 2015. In November 2015, the plaintiff furnished copies of documents that were referred to in its replies. Clear copies were sought by the defendant and further documentation was furnished on 27 June 2016.

**263.** Save as outlined above, counsel accepted that there was somewhat of a hiatus in the period 2015/2017 where, apart from the provision of clear copies of documentation, the plaintiff did not take active steps to prosecute the action against the defendants. However, counsel submitted that the defendants had acquiesced in that delay, in that they were not pressing the plaintiff to proceed with the action.

**264.** It was further submitted that thereafter, the defendant had been responsible for considerable delay in the prosecution of the action. In particular, it was submitted that the defendant had delayed for a very considerable period in dealing with the issue of discovery of documents. An initial request for voluntary discovery had been made by the plaintiff by letter dated 24 October 2017. A motion for

discovery was issued on 16 November 2017, which resulted in an order being made directing the defendant to make discovery within four weeks, which order was made on 15 January 2018. Thereafter, the defendant changed solicitor and a request for further time to complete the discovery process was made on 13 March 2018. By letter dated 5 April 2018, the plaintiff wrote agreeing to an extension of time for compliance with the order for discovery by a further seven days.

**265.** When discovery was not made by the defendant, a motion seeking to strike out the defence was issued in October 2018. On 22 November 2018, a consent order was made by the High Court granting the defendant an extension of time of four weeks within which to make discovery. However, the defendant did not do so. By letter dated 26 August 2019, the plaintiff's solicitor sought compliance with the order that had been made on 22 November 2018. The affidavit of discovery was not furnished by the defendant until 18 September 2019.

**266.** On 12 January 2020, the plaintiff served notice of trial on the defendants. Thereafter, correspondence ensued in relation to the exchange of reports. The defendant's solicitor wrote seeking further time to consider the request for identification of experts and exchange of reports. Ultimately, the plaintiff applied for a hearing date for the case and it was set down for hearing on 12 October 2021.

**267.** The defendant's served a further notice of change of solicitor on 9 June 2021. On 27 July 2021, the defendant's sought an adjournment of the hearing of the action on the grounds that their expert witness, Mr. Levett, had retired. An application was made by the defendant for an adjournment of the hearing of the action on 29 July 2021. That was acceded to by the court. The defendant issued its motion to have the action struck out on grounds of delay, on 3 July 2022. Ultimately, the list judge directed that that motion should be heard at the same time as the trial of the action and the action was given a new hearing date of 15 December 2022. However, in view of the fact that the defendant had engaged Dr. Doyle as an expert witness, the time allocated for the hearing would not be sufficient. Accordingly, a new trial date of 3 October 2023 was given.

**268.** It was submitted that in the circumstances, it was clear that the defendant had caused considerable delay in the action; first, by failure to provide a defence in a timely manner; secondly, by taking over two years to make discovery; thirdly, by causing the abandonment of the first hearing date scheduled for October 2021.

**269.** Insofar as it had been asserted that the defendants had suffered prejudice due to the delay, it was submitted that the third affidavit of Mr. Hayes showed that as of 2 November 2023, Mr. Levett was

on a website known as Speaker Net, which stated that he was available to speak anywhere and could do so with less than a week's notice. In terms of the fee, he requested that a contribution to a charity be made and that he be furnished with travel expenses, if he had to travel more than 50 miles to an engagement. It was submitted that having regard to the content of that website, it could not be argued that he was either unwell, or was incapable of travelling to speak at various events.

**270.** It was submitted that any possible prejudice to the defendant by the non-availability of Mr. Levett as an expert witness, had been entirely cancelled out by the agreement of the plaintiff to admit his report in evidence, without formal proof. The plaintiff had done that, notwithstanding that there was clear evidence that the contributing experts to that report, being Dr. Stain and Prof Mitchell, were still available to give evidence; as was Dr. Carew, who had furnished the report in 2012, albeit he was resident in the US. It was further submitted that the assertion made by the defendant that he was unable to obtain the services of a pomologist, was without substance, as there was merely the statement by Dr. Doyle that he had tried to obtain the services of a pomologist in the UK and Europe, but had been unsuccessful in that regard. He had accepted that there was a pomologist on the academic staff in UCD. There was no evidence that that man was unavailable to give evidence on behalf of the defendant.

**271.** It was submitted that when looked at in its entirety, it was clear that the delay in the action had been contributed to, to a very considerable extent, by inactivity on the part of the defendants. It was submitted that even if the court were to find that Mr. Levett was not available as an expert witness, any possible prejudice to the defendants, had been obviated by the agreement of the plaintiff to admit his report in evidence. It was submitted that in these circumstances, it would be unjust and inappropriate to strike out the action on grounds of delay, particularly, as that application had been made at the end of the trial.

**Conclusions on the Delay Issue.**

**272.** It is not necessary for the court to outline the evidence that was put before it in the various affidavits that were sworn in the context of the motion to strike out the action on grounds of delay. That evidence was supplemented by the oral evidence given by Dr. Doyle in relation to his efforts to ensure the attendance of Mr. Levett as a witness at the trial of the action.

**273.** The court is satisfied that Mr. Levett retired from FAST in or about 2015. While his son referred to him at one stage as being in poor health, the court is not persuaded that Mr. Levett suffers from any significant physical or cognitive impairment that would prevent him giving evidence. The court accepts

the averments in the affidavit sworn by Mr. Hayes in November 2023, that Mr. Levett continues to hold himself out as being available to speak at various functions for a modest fee that is to be donated to charity.

**274.** However, the court is persuaded by the documentary evidence, that Mr. Levett has retired and is unwilling to act as an expert witness. That much is clear from the email that he sent to Mr. Tony Doyle on 31 August 2021, as exhibited to the affidavit sworn by Dr. Owen Doyle on 2 June 2022, wherein, Mr. Levett stated as follows:

> "*With reference to an affidavit, I have spoken to our solicitors about any ramifications for me as a result of providing an affidavit for you. I have been advised that if the case went to court, the court could subpoena me to attend the hearing in Ireland. In view of the fact that my report was done 10 years ago, and in the face of cross examination I would struggle to remember all the fine details of the case, I regret that I am unable to provide you with an affidavit.*"

**275.** The court accepts the submission made by counsel on behalf of the defendants, that there is a world of difference between Mr. Levett holding himself out as being available to give talks at various functions, such as garden parties, for a modest fee payable to charity; and giving evidence before the High Court in Dublin in relation to tests that he carried out over 10 years ago. Accordingly, the court finds as a fact, that having retired from his position in 2015, Mr. Levett is no longer willing to act as an expert witness; and accordingly, was unavailable to the defendant at the trial of the action.

**276.** It is clear from the evidence that is before the court, that the other contributors to the Levett report, being Dr. Stain and Prof. Mitchell, appear to be still available to act as expert witnesses. In addition, it appears that Dr. Carew, is still working as a scientist, albeit in the US. That of itself, is not an obstacle, because since the pandemic, the courts in Ireland have become used to taking expert evidence remotely. There are many courts in Dublin which have the facilities to take such evidence via an internet connection, with the witness being displayed on screens within the court. In the circumstances, the court finds that these experts remained available to the defendants, had they wished to call them as witnesses.

**277.** While there has undoubtedly been a very considerable delay in bringing this action on for hearing, the court is satisfied from the evidence that is before it, that a very significant portion of that delay was due to a failure on the part of the defendant to take various steps that were required of him in the course of the litigation. As such, he has to be seen as being responsible for those periods of delay.

It is trite law that litigation is a two-way street. While the primary burden rests on the plaintiff to pursue his action against the defendant, there is an obligation on the defendant to cooperate with the litigation and to take the steps required of him in a timely manner.

**278.** In terms of prejudice suffered by the defendant due to the loss of Mr. Levett as an expert witness, the court is not satisfied that he has suffered any tangible prejudice. This is due to the fact that the plaintiff agreed to the admission of Mr. Levett's report in evidence. As already noted, Mr. Levett based his conclusions on various tests that had been carried out by others. Those witnesses were available to prove their tests, if necessary.

**279.** The court does not accept that there was no other pomologist available to give evidence on behalf of the defendant. Dr. Doyle did not provide any evidence of what exact steps that he had taken to secure the services of a pomologist. He accepted that Dr. Hosein in UCD was suitably qualified. There was no reason why he would not have been available to act for the defendant, if requested to do so.

**280.** The law in relation to applications to strike out an action on grounds of delay and want of prosecution is well settled. The principles were set out in *Primor PLC v. Stokes Kennedy Crowley* [1996] 2 IR 459. It is not necessary to set out those principles again.

**281.** Since the decision in the *Primor* case was handed down, there have been multiple decisions applying those principles to various factual situations. This has given rise to a plethora of decisions, which sometimes differ one from the other, in emphasis and tone. In *Cave Projects Limited v. Gilhooley & Ors*., the Court of Appeal carried out an extensive review of the principles and summarised the case law on which they were based. That summary is set out at para. 36 of the judgment; which is itself, a very long paragraph. For that reason, I will not quote it in full, but instead, I will highlight some of the relevant principles that were identified by Collins J. in the course of that judgment. He outlined the following principles as being applicable in applications such as the present one before the court:

- The onus is on the defendant to establish all three limbs of the *Primor* test i.e., that there has been inordinate delay in the prosecution of the claim, that such delay is inexcusable and that the balance of justice weighs in favour of dismissing the claim.
- An order dismissing a claim is a far reaching one; such order should only be made in circumstances where there has been significant delay and where, as a consequence of that delay, the court is satisfied that the balance of justice is clearly against allowing the claim to proceed.
- Case law has emphasised that defendants also bear a responsibility in terms of ensuring the

timely progress of litigation; while the contours of that responsibility have yet to be definitively mapped out, it is clear that any culpable delay on the part of the defendant will weigh against the dismissal of the action.

- The issue of prejudice is a complex and evolving one. It is central to the determination of the balance of justice. It is clear from the authorities that absence of evidence of specific prejudice, does not in itself necessarily exclude a finding that the balance of justice warrants dismissal in any given case. General prejudice may suffice.
- The authorities suggest that even moderate prejudice may suffice where the defendant has established that there was inordinate and inexcusable delay on the part of the plaintiff. However, Collins J. stated that marginal prejudice, if interpreted as being of a lesser standard than moderate prejudice, would not be sufficient.
- Collins J. noted that notwithstanding certain dicta in the *Millerick* case, which suggested that even in the absence of proof of prejudice, it may still be appropriate to dismiss an action, it had to be remembered that the jurisdiction was not punitive or disciplinary in character and the issue of prejudice had been acknowledged as being central to the court's consideration of the balance of justice.

**282.** Collins J. concluded his summary of the relevant principles by stating as follows at para 37:

"*It is entirely appropriate that the culture of "endless indulgence" of delay on the part of plaintiffs has passed, with there now being far greater emphasis on the need for the appropriate management and expeditious determination of civil litigation. Article 6 ECHR has played a significant role in this context. But there is also a significant risk of over-correction. The dismissal of a claim is, and should be seen as, an option of last resort. If the Primor test is hollowed out, or applied in an overly mechanistic or tick-a-box manner, proceedings may be dismissed too readily, potentially depriving plaintiffs of the opportunity to pursue legitimate claims and allowing defendants to escape liability that is properly theirs. Defendants will be incentivised to bring unmeritorious applications, further burdening court resources and delaying, rather than expediting, the administration of civil justice. All of this suggests that courts must be astute to ensure that proceedings are not dismissed unless, on a careful assessment of all the relevant facts and circumstances, it is clear that permitting the claim to proceed would result in some real and tangible injustice to the defendant*."

**283.** Two days prior to the delivery of the Court of Appeal judgment in the *Cave* case, the Court of Appeal also delivered judgment in *Kirwan v. Connors* [2022] IECA 242. One of the issues which arose for decision in that case, was whether the plaintiff could excuse the delay in the case due to the failure of the defendant to reply to a notice for particulars that had been raised by the plaintiff. Delivering the judgment of the court, Power J. held that this was not a good excuse for some of the delay that had occurred in the proceedings. She stated as follows at paras. 131-132: -

> "*131. … In the absence of any reply to his alleged notice for particulars, Mr. Kirwan was not entitled to simply 'sit on his hands' and allow the proceedings to stagnate. He had tools available to him to compel the replies he sought and his status as a litigant in person does not absolve him from his responsibilities in this regard. Irvine J's observations in Flynn (albeit in that case on the failure to cooperate in seeking full and proper discovery) are apposite. She stated (at para. 33): '… the onus is on a plaintiff to prosecute their claim with reasonable diligence and if a defendant fails to co-operate, for example by ignoring correspondence in relation to discovery, the rules of court provide a method whereby that co-operation can be secured. Mr. Flynn had, as was considered material in O'Domhnaill, the ability to control any such delay.'*
>
> *132. The appellant in this case also retained the ability to control the delay that ensued. Faced with the lack of response to the notice for particulars, he was obliged to use the machinery of the rules of the court to move matters on. His failure to do so cannot be relied upon as a valid ground for excusing the delay and the trial judge was correct so to find*."

**284.** The court notes that on 16 March 2023, the Supreme Court allowed leave to appeal in the *Kirwan* case: see [2023] IESCDET 34.

**285.** Having regard to the evidence that has been put before the court and having regard to the legal principles that have to be applied according to the caselaw cited above, I am satisfied that it would not be appropriate to strike out the plaintiff's action against the defendant on grounds of delay or want of prosecution. As already noted, much of the delay that occurred was due to a default on the part of the defendant in taking steps required of him at various stages of the litigation. The plaintiff did not sit on his hands in the face of that delay. He took active steps, such as by bringing motions, to secure compliance by the defendant with his obligations to deliver a defence and to make discovery. Furthermore, the court is not satisfied that the defendant has suffered any real prejudice, due to the delay in bringing the action on for hearing. This is due to the fact that the plaintiff has agreed to the

admission of Mr. Levett's report without formal proof. In addition, if the defendant had wished to call the experts who had contributed to that report, he could have done so. For these reasons, the court refuses the reliefs sought by the defendant in his notice of motion dated 4 February 2022.

**Conclusions on Causation.**

**286.** In determining the issues of causation and liability, one can usefully begin by setting out a number of facts that are not seriously in dispute between the parties. First, it is accepted that the plaintiff's farm has a total area of approximately 120 acres, which lies north-east of the field that was leased by the defendant and was used for growing potatoes in September 2011. Secondly, it is accepted that the plaintiff is an experienced fruit and vegetable grower. He is 55 years of age; he is a third-generation farmer at that location; he qualified from Warrenstown College of Horticulture in 1986.

**287.** Thirdly, it is accepted that the plaintiff sprayed his apples with calcium chloride on 20 July 2011, 4 August 2011 and 17 August 2011. It is accepted that the defendant's employee sprayed the potato field with Spotlight Plus on 10 September 2011.

**288.** Fourthly, it is accepted that the plaintiff first noticed damage in the form of speckling/spots on the apples in his orchard on 17 September 2011. Fifthly, all the witnesses who viewed the damage to the apples in September 2011, were agreed that the damage was on the exposed surfaces of the apples, meaning that the damage was on the side of the apple that was facing away from the tree into the aisle between the rows of apple trees. It was agreed that those parts of the apples that were facing in towards the trunk of the tree, and those parts of the apples that were protected by an overhanging leaf, were largely unaffected. The damage to the apples in the orchard was clearly visible in the photographs taken by Mr. Doyle and Mr. Tracey at the relevant time. Those are the areas on which there was a large measure of agreement between the parties.

**289.** The first issue which the court must determine is whether it was a windy day when the herbicide was applied to the potato field on 10 September 2011. The court is satisfied that it was a windy day on that occasion. The court reaches that finding of fact for the following reasons: first, the court accepts the evidence given by Donnacha Donnelly and by Isabel Donnelly, which was to the effect that it had been very windy that day. They remembered that, because they had both attended their nephew's christening celebration that day and they recalled that the gazebo in the garden where the celebration was being held, was partly blown down due to high winds.

**290.** Their evidence in this regard, is supported by the data from the weather station at Dublin Airport,

which is approximately 11 km from the locus, which confirmed significant wind speeds throughout the course of that day. It also confirmed the wind direction, as being largely from a south westerly direction.

**291.** In addition, the court is entitled to have regard to the fact that the defendant elected not to call Mr. Hogan, the crop sprayer on 10th September 2011, as a witness at the trial of the action. A court is entitled to draw an inference where a relevant witness, who is available to a party, is not called by that party. The nature of such an inference was set out by O'Donnell J. (as he then was) in *Whelan v AIB* [2014] IESC 3, where he stated as follows at para. 91:

> "*At the outset I should say that I deprecate the fashion of referring to the "drawing of an inference" in the abstract as if it was an end in itself, akin to the deduction or addition of points which might or might not alter the result of a game. The drawing of an inference in this context, as indeed in any other, is an exercise in logic: when one party asserts a given set of affairs, which the identified witnesses available to the other party could be expected to rebut if untrue, then, if the second party does not call those witnesses to give evidence, the court may draw the inference in support of the case made by the first party, that those witnesses were not called to give such evidence because they would not in fact rebut the case made by the first party. Each case therefore, involves a consideration of the specific inference which the court is invited to draw*…"

**292.** Having regard to the inference that the court is entitled to draw by the failure on the part of the defendant to call Mr. Hogan as a witness, and having regard to the fact that the court accepts the accuracy and truthfulness of the evidence given by Mr. Donnelly and Ms. Donnelly, as supported by the data from the weather station at Dublin Airport, the court finds as a fact that the spraying of Spotlight Plus on the defendant's potato field occurred on a day when there were high winds, which were blowing in a south westerly direction.

**293.** While the parties were largely in agreement that there was damage evident to the apples throughout the entirety of the orchard, there was marked disagreement between them as to the consistency of that damage. The plaintiff and his witnesses stated that, while the damage was throughout the orchard, it was more severe in those areas that were nearer to the defendant's potato field and was less severe as one moved away from that location. In addition, they stated that there was less damage on those apples that were in protected areas of the orchard, such as on trees that were protected by the shelter belts of trees, or were located behind the glasshouses.

**294.** The defendant and his witnesses disagreed with those assertions. Their evidence was to the

effect that the damage to the apples was entirely consistent and even throughout the orchard. They regarded this as significant evidence that that damage had not been caused by spray drift, because if it had been caused by spray drift, one would have expected to have found a very variable pattern of damage, with severe damage in those areas that were closest to the potato field and which were not protected by obstacles, such as hedges or buildings.

**295.** The defendant also maintained that the only area where there was more severe damage, was on the trees that were at the end of a row, which the defendant argued indicated that that damage had been caused by an over application of the spray that was being applied deliberately to the trees in the orchard, which occurred due to the slowing of the tractor pulling the spraying devise, when it reached the end of the row of trees.

**296.** As stated earlier in this judgment, I am satisfied that the parties themselves have done their best to recall what they saw in the orchard in September 2011. However, while the court accepts that the defendant is essentially a truthful witness, it cannot lose sight of the fact that in his evidence he became somewhat hysterical at times. Two examples of this will suffice. At one point in his evidence, he suggested that the letter of 19 January 2012 was a fabrication and had never been sent to him by the plaintiff. When asked as to whether he was making the case that that letter, which had been introduced in evidence by the plaintiff, was a fabricated document; he resiled from making any such allegation, but denied that he had ever received the letter. Later in his evidence, it was clear that he was very annoyed by the fact that Mr. Callaghan had given evidence on behalf of the plaintiff, when he had indicated to the defendant that he was not in a position to carry out tests on the sample apples that had been furnished to the defendant from the plaintiff's orchard. At one point he seemed to suggest that Mr. Callaghan had never visited the plaintiff's orchard at all.

**297.** I am satisfied that the defendant did not intend to impugn Mr. Callaghan's honesty as a witness in this regard. I am satisfied that it was merely an example of him getting carried away in his evidence to the court. Mr. Callaghan is a highly respected official within the farm advisory body, Teagasc. I am satisfied that he attended at the plaintiff's farm because he had been requested to do so by a farmer, who had discovered significant damage to his orchard. It is the function of Teagasc to go out and help farmers, and give them advice whenever they have a difficulty. I am satisfied that Mr. Callaghan attended at the farm in that capacity and for that purpose.

**298.** Insofar as he may have told the defendant at a later stage, that Teagasc did not have the

capacity to carry out tests on the apples and for that reason he had suggested that the defendant could try the facility at Kildalton, I am satisfied that that was an honest and reasonable answer to have given to the defendant's inquiry. Teagasc are a farm advisory body. They do not carry out scientific tests of a forensic nature for use in litigation.

**299.** The court found the evidence of Mr. Callaghan fair and balanced. The court is satisfied that in attending at the plaintiff's farm on 23 September 2011, Mr. Callaghan did so in the course of his professional duty as a farm adviser. His evidence was particularly useful, because in a letter dated 25 September 2011, he set out what he had seen at the farm on the date of his visit to it, two days previously. This is the only contemporaneous written account by an unconnected party that is available to the court. In that letter he stated as follows:

> *"Having visited your farm on Monday, 23 September 2011, I was surprised at the level of damage to your apple crop.*
>
> *Initial investigations immediately pointed to herbicide drift damage as the damage on the crop was emphasised on the windward side of the orchard (windward is a direction up wind from the orchard. Leeward is the direction downwind from the orchard). Evidence of drift damage was also apparent on shrubs in your parent's garden and on the various hedges on the road. The leeward side of the shrubs and hedging again were less affected. This hedge would have been directly in the line of the drift. It was also notable that part of the orchard which was sheltered by your sheds was less affected, pointing again to herbicide drift from directly across the road being the cause.*
>
> *I understand the potatoes in the field on the opposite side of the road had been sprayed with a desiccant in the previous weeks. I could see a potato crop with the haulms burned off from the roadside vantage point.*
>
> *The speckled discolouration on the leaves and fruit of the apple trees will make this fruit unmarketable for the fresh market. The majority of your orchard is affected with the worst areas nearest the road. Even one speckle will make an apple unsuitable for fresh market."*

**300.** This evidence in relation to the lessening in severity of the damage to the apples, as one moved away from the potato field, was also supported by the evidence given by Mr. Traas. He was the chairman of the Apple Growers Association, who had been asked by the plaintiff to view the damage to the orchard. I am satisfied that he is an independent and truthful witness in relation to what existed on the ground at that time.

**301.** Accordingly, the court finds as a fact that the damage to the apples in the plaintiff's orchard in September 2011, while existing throughout the entirety of the orchard, was more severe in those areas that were closer to the potato field and became less pronounced the further one moved from that location. It was also less pronounced in areas that were protected by other structures, such as the shelter belts of trees and the glasshouses.

**302.** Turning to the essential dispute as to the causation of the damage to the plaintiff's apples in September 2011 and in particular, whether that damage was caused by the over application of calcium chloride by the plaintiff, or was caused by spray drift from the application of the herbicide, Spotlight Plus, to the defendant's potato field on 10 September 2011; the court has reached its conclusion on the following evidence, which it has found persuasive.

**303.** First, the court accepts the evidence of Mr. Donnelly that he had applied calcium chloride to his orchard for many years prior to 2011, and since that date, without ever suffering any adverse effect on his apples. The court finds this evidence very significant.

**304.** The court accepts the evidence given by Mr. Traas that the concentration of calcium chloride applied to the plaintiff's apples in 2011, was at a level that was not excessive. Mr. Traas stated that he would have applied calcium chloride to his orchard at a concentration that was five times stronger than that used by the plaintiff. He went on to state that some apple growers even apply calcium chloride at a concentration that is 10 times stronger than that applied by the plaintiff in 2011.

**305.** The court further notes that on the third application of calcium chloride on 17 August 2011, the plaintiff only sprayed half the orchard, as he had already commenced harvesting the remaining parts of the orchard for sale into the fresh fruit market.

**306.** It is also noteworthy that in his report, Mr. Levett, who had access to the plaintiff's spray records, noted that the level of calcium chloride that had been applied by the plaintiff to his orchard was "within the label recommendation" for the product applied. He was also aware of the dates on which it had been applied. He did not suggest that those applications were either too numerous, or had been carried out at too short intervals between applications.

**307.** The court also finds it significant that the applications of calcium chloride to the plaintiff's apples occurred on 20 July 2011, 4 August 2011 and 17 August 2011, while the damage to his apples did not become apparent until 17 September 2011. The herbicide had been applied to the defendant's potato field on 10 September 2011. This evidence suggests that it is more likely that the damage which became

evident on 17 September 2011, was caused by spray drift from the herbicide some seven days earlier, rather than having been caused by the application of a relatively dilute dose of calcium chloride some 44 days previously, particularly as only a portion of the orchard was sprayed with calcium chloride on the third occasion.

**308.** The court accepts the evidence of Mr. Callaghan and Dr. Mac an tSaoir, that if the orchard had been sprayed with an excessive concentration of calcium chloride, which was sufficient to cause the damage to the apples as shown in the photographs, there would have been extensive leaf damage on the apple trees as well. Dr. Doyle accepted that such damage to the leaves would be a likely consequence of the over application of calcium chloride. It was agreed by all parties, and is clearly shown in the photographs taken at the time, that there was relatively little damage to the leaves on the apple trees.

**309.** It is difficult to understand how Mr. Levett came to the opinion that the damage to the apples had been caused by the over application of calcium chloride, when he had noted from the plaintiff's spray records, that the amounts that had been applied were within the manufacturer's recommendations. Insofar as the tests which he had commissioned revealed that there was an increase of calcium of approximately 15% in the damaged areas, as against the undamaged areas of the apples; there is no evidence that that increase in calcium at the damaged area, was statistically relevant. The court accepts the evidence given by Mr. Traas that where there has been damage to an apple, nutrients such as calcium will be exported to the damaged area in an attempt to repair that area.

**310.** In addition, the court notes that the results obtained from the tests carried out in England by Dr. Carew, where the herbicide was applied to the subject trees in different concentrations, could not have mirrored accurately the effect of spray drift, due to the fact that the application of the herbicide in Dr. Carew's test was done via a knapsack sprayer, which is designed to coat the apple in a regulated way; whereas the damage to the plaintiff's orchard was alleged to have occurred by spray drift, whereby tiny molecules of the herbicide are carried on the wind, and land on the exposed areas of the fruit.

**311.** The court accepts the evidence given by Dr. Mac an tSaoir that, depending on the windspeed at the relevant time, such molecules can be carried a very great distance.

**312.** Insofar as there was an absence of visible damage to the majority of the leaves in the orchard, the court accepts the evidence of the plaintiff's witnesses that given the time of year, being the month of September, the leaves on the apple trees were old leaves and would have been dying since in or about June/July of that year. The court accepts the evidence of the plaintiff's experts that the leaves

were in the process of decaying and therefore the effect of the herbicide landing on them by way of spray drift would not be as apparent as on the fruit, which was still growing.

**313.** Insofar as a negative residue test for carfentrazone-ethyl on the apples, had been obtained from Eurofin some days after 22 September 2011, the court accepts the evidence of the plaintiff's expert witnesses, that that was not surprising, given that carfentrazone–ethyl has a relatively short half-life. Accordingly, they stated that they would not expect to find any residue of the herbicide on the apples, when it had been applied to the apples by spray drift, and the test had been carried out some 14 days after that application. The evidence of Dr. Doyle did not contradict this assertion. He accepted that the herbicide had a very variable half-life, ranging from a number of hours, to days, to months in certain soil conditions. In these circumstances, the court finds that the negative residue test as found by Eurofin, does not establish that the damage to the apples was not caused by spray drift of carfentrazone-ethyl.

**314.** The court prefers the evidence of the plaintiff's expert witnesses, which was to the effect that the damage shown on the hedge at the front of the plaintiff's mother's garden and on a holly bush in the garden, was consistent with the damage seen on the apples in the orchard. Given that there is no question that the hedge, or the holly bush, had been sprayed at any time with calcium chloride, the court finds that the existence of similar damage to the hedge and holly tree, is more consistent with that damage having been caused by spray drift from the herbicide and that similar damage was caused by the herbicide landing on the trees in the orchard.

**315.** While the defendant attempted to argue that the damage shown on the hedge and on the holly tree, was merely senescence, or damage caused by the fumes from passing vehicles, the court prefers the evidence of the plaintiff's expert witnesses that the damage shown in the photographs was more consistent with having been caused by spray drift from the herbicide.

**316.** The court finds that the pattern of spotting/speckling on the apples, as shown in the photos taken by Mr. Doyle and Mr. Tracey; wherein the damage is on the outer exposed surface and is largely absent from the inner side, or on those areas covered by leaves, is more consistent with the damage having been caused by spray drift of a herbicide, rather than by the intentional application of the nutrient, calcium chloride.

**317.** The court has also had regard to the evidence given by Mr. Donnelly about a bin of apples that was in his yard on 10 September 2011. The apples in the bin had been picked prior to 17 September 2011, when Mr. Donnelly first noted damage to the apples in his orchard. The top layer of apples in that

bin were shown in the photographs taken by Mr. Tracey on p. 34. Mr. Donnelly's evidence in relation to the apples in the bin was not challenged. He stated that the apples on the top layer of the bin, as shown in the photograph, were damaged with spots/speckling. However, he stated that the apples in the lower layers in the bin were not damaged.

**318.** The court found this evidence significant, because it means that the apples in the lower layers, being undamaged, had not been damaged by the application of calcium chloride to them in July or August 2011. If they had been damaged by the application of the nutrient in the months of July/August 2011, the apples in the lower layers would have been in a damaged condition. But they were not. The fact that the apples on the top layer, as shown in the photograph on p. 34, were damaged, is more consistent with that damage having been caused by spray drift of the herbicide on 10 September 2011, as the spray drift would only have been penetrated those apples which were exposed, being the apples on the top of the bin.

**319.** At the end of the day this court must decide the issue of causation on the balance of probabilities. In the course of argument at the bar, Mr. Rogers SC referred to the case of *Miller v Minister of Pensions* [1947] 2 All ER 372 where Denning J (as he then was) described the burden of proof in a civil case in the following way:

> "*That degree is well settled. It must carry a reasonable degree of probability, but not so high as is required in a criminal case. If the evidence is such that the tribunal can say: "we think it more probable than not", the burden is discharged, but, if the probabilities are equal, it is not.*"

**320.** The court accepts the submission that was made on behalf of the defendant, that the burden of proof does not rest on the defendant to establish that the damage to the plaintiff's apples was caused by the over application of calcium chloride. The burden of proof rests at all times on the plaintiff to establish on the balance of probabilities, that the damage that occurred to his orchard in September 2011, was caused by spray drift of the herbicide from the spraying operation carried out on the defendant's potato field on 10 September 2011.

**321.** In his evidence, Dr. Doyle laid great emphasis on the fact that one could not reach a conclusion on the existence of a scientific fact from a viewing of the photographs alone. In particular, he stated that one could not deduce the cause of the damage to the apples, as shown in the photographs taken by Mr. Tracey and Mr. Doyle, from a visual inspection of the apples, or from the photographs of them. He stated that the photographs would only show symptoms, but not the cause of the symptoms. The

court accepts that as a broad statement of principle.

**322.** However, proof of a fact as a scientific fact, is quite different to proof of a fact as a legal fact in civil litigation. In the world of science, the scientist is obliged to prove, as a matter of established fact, a certain proposition. The scientist must do that by visual examination, backed up by strong scientific evidence to establish the proposition which is said to constitute a scientific fact. The scientist must be able to prove that his statement of fact is correct as a matter of science. The scientist does that by attempting to reproduce the scientific fact by a particular method, thereby establishing cause, and also by ruling out all other possible alternative causes for the end result.

**323.** In relation to proof of legal facts, the court rarely has that luxury. Very often the court is presented with an event that has happened in the past, sometimes many years in the past, for which it must attempt to arrive at an explanation as to how that event, or state of affairs, was likely to have occurred. The court does not have the luxury of carrying out tests to reproduce the event or state of affairs and thereby to deduce its exact cause. Instead, the court has to look at all the available evidence and decide from a consideration of all the facts that are proven, whether, on the balance of probabilities, a particular proposition has been established. If it is established that a certain event or state of affairs was more likely than not caused in a particular way, the court can find as a fact that it was caused in that way.

**324.** While Dr. Doyle was correct in stating that one could not come to a conclusion as to the cause of the damage to the apples, simply from looking at the photographs of the apples; it is permissible for an expert to look at the photographs and to give an opinion, based on his qualifications and experience in the field, as to whether what is depicted in the photographs is consistent with a given hypothesis. Equally, the expert can give an opinion as to whether what is shown in the photographs, is inconsistent with a particular hypothesis. Evidence of that nature is given all the time before the courts.

**325.** In this case, it may fairly be stated that the scientific tests carried out by Mr. Levett and his team on behalf of the defendants were more robust than any tests which were carried out by the plaintiff. However, it is important to note that this court is obliged to consider all the evidence in reaching a conclusion on causality. In *Duffy v McGee* [2022] IECA 254, Collins J. stated that a court should not give more weight to expert evidence than to 'ordinary evidence of fact' (see para. 18).

**326.** In *James Elliott Construction Ltd v Irish Asphalt Ltd* [2011] IEHC 269, Charleton J. set out the role of the court in cases with expert testimony in the following way at para. 11:

"*The function of the court, however, is not to adopt the task of resolving controversy by adding to the canons of science. Rather, a clear choice must be made as between the validity of the testimony on one side or the other and the weight to be attached, as between conflicting opinions, to any which seem to be correct. In Best v. Wellcome Foundation Ltd. [1993] 3 I.R. 421 at 462, Finlay C.J. stated:-*

> *"I am satisfied that it is not possible for either a judge of trial or for an appellate court to take upon itself the role of a determining scientific authority resolving disputes between distinguished scientists in any particular line of technical expertise. The function which a court can and must perform in the trial of a case in order to achieve a just result is to apply common sense and a careful understanding of the logic and likelihood of events to conflicting opinions and conflicting theories concerning a matter of this kind.""*

**327.** In this case, the court has had regard to the large volume of evidence heard. This includes not only the expert testimony from the witnesses on behalf of the parties, but also the significant evidence, as given by the witnesses as to fact. This evidence, in my view, points to the damage to the plaintiff's apples having been caused by spray drift from Spotlight Plus. That evidence included: that it was a windy day on 10 September 2011 when the herbicide was applied to the defendant's potato field; that the wind was blowing in a south westerly direction, meaning that it was blowing towards the plaintiff's farm; the fact that the plaintiff had used calcium chloride without any adverse consequences, both before and after 2011; the fact that his spray records indicated that the application of calcium chloride by him was at a level that was within the manufacturer's recommendation; and indeed was at a concentration that was considerably lower than that which would have been applied by Mr. Traas, and at a lower level than that regularly applied by other farmers; that the time interval between the last application of calcium chloride to the apples and the onset of damage was very great, being in the order of 44 days, whereas in the intervening period, only seven days prior to the damage being observed, the herbicide had been applied to the defendant's field; the fact that the apples in the top layer of the bin as shown in Mr. Tracey's photograph on p. 34, were damaged, whereas the apples in the lower layers were undamaged. All of these facts when taken together, persuade the court that on the balance of probabilities, the damage to the apples in the plaintiff's orchard was caused by spray drift of Spotlight Plus from the defendant's potato field on 10 September 2011.

**Conclusions on Liability.**

**328.** Turning to the question of the legal liability for having caused that damage, the court is satisfied that the defendant is liable at law for the damage that was caused to the plaintiff's apples. The court accepts the evidence that was given by the plaintiff's expert witnesses that good practice in 2011, required that herbicides, such as Spotlight Plus, should not be sprayed in very windy conditions. The reason for that is obvious. It is much more likely that there will be spray drift of the herbicide onto non-target areas, if the herbicide is sprayed on a windy day. The court has already found that it was a windy day on 10 September 2011 and that the wind was blowing from a south-westerly direction. The court is satisfied that in carrying out the spraying operation on the defendant's field on 10 September 2011, in the weather conditions that pertained that day, the defendant's employee acted negligently. It ought to have been readily apparent to him, had he been taking reasonable care, that by carrying out such spraying operations, he would expose neighbouring landowners to a foreseeable risk of injury.

**329.** That ought to have been well known to an experienced crop sprayer, particularly in light of the warning given on the label of the Spotlight Plus container, which stated *"Because some non-target plants are sensitive to Spotlight Plus, avoid spray drift on to broadleaved crops outside of the target area".*

**330.** I am satisfied that the defendant acted negligently in spraying the herbicide in the windy conditions of 10 September 2011, and that the harm caused to the plaintiff's orchard was foreseeable, given the warnings on the herbicide product, and in those circumstances the plaintiff is entitled to damages for his loss.

**331.** The plaintiff also claimed damages in nuisance. The test for a nuisance was discussed extensively by the Supreme Court in *Hanrahan v Merck Sharpe and Dohme* [1988] ILRM 629. At para. 10, Henchy J, on behalf of the court, stated:

> "*To provide a basis for the award of damages for the private nuisance relied on, the plaintiffs have to show that they have been interfered with, over a substantial period of time, in the use and enjoyment of their farm, as a result of the way the defendants conducted their operations in the factory. The plaintiffs do not have to prove want of reasonable care on the part of the defendants. It is sufficient if it is shown as a matter of probability that what they complain of was suffered by them as occupiers of their farm in consequence of the way the defendants ran their factory*."

**332.** He went on at para. 17 to outline:

"*17. A party asserting that he has sustained material damage to his property by reason of an alleged nuisance must establish the fact of such damage and that it was caused by the nuisance as alleged. It is no defence to such a claim, if established, that the activities complained of were carried out with the highest standards of care, skill and supervision and equipment or that such activities are of great public importance and cannot conveniently be carried out in any other way. In so far as the nuisance alleged consists of interference with the ordinary comfort and enjoyment of the property of the plaintiff, his evidence must show sensible personal discomfort, including injurious affection of the nerves or senses of such a nature as would materially diminish the comfort and enjoyment of, or cause annoyance to, a reasonable man accustomed to living in the same locality. To my mind the reasonable man connotes a person whose notions and standards of behaviour and responsibility correspond with those generally pertaining among ordinary people in our society at the present time, who seldom allows his emotions to overbear his reason, whose habits are moderate and whose disposition is equable*."

**333.** It would appear from these dicta that what was envisaged by the Supreme Court was a test for nuisance where the harm pleaded occurred over a substantial period of time, or that the tort was continuous in nature.

**334.** In this case, there was an isolated event, where the court has found that the spraying of herbicide on the defendant's farm on 10 September 2011, a windy day, caused spray drift to blow across the plaintiff's orchard, causing damage to the apples therein.

**335.** In McMahon and Binchy, Law of Torts, 4th edition, the authors set out that it is in much more unusual circumstances that a 'once-off event' would constitute a nuisance. At para. 24.66, they state:

"*It seems proper to regard nuisance as a continuing wrong, in the sense of a wrongful state of affairs for which the defendant is responsible. Thus, where an interference is of a fleeting nature, which is unlikely to recur, the courts are reluctant to stigmatise it as a nuisance. This does not mean, however, that the tort of nuisance cannot be committed where damage results from a single act such as the escape of gas, for example. The gist of the claim is not the isolated act but the continuous or permanent organisation by the defendant of his or her affairs on his or her own property in such a way as to result in the injury*."

**336.** In *Midwood & Co Ltd v Manchester Corporation* [1905] 2 KB 597, it was held that the storage of electricity on property, which caused fusion of bitumen, leading to a build-up of explosive gases,

resulting in an explosion and damage to an adjoining property, constituted a nuisance. Although the case primarily turned on the issue of statutory immunity.

**337.** It appears to me that what was envisaged by the authors, was that a continuous state of affairs may constitute a nuisance, even where it only results in damage on one occasion. For example, if the defendant was repeatedly spraying herbicide in windy conditions for an extended period, but it only once resulted in an incident of harm to the plaintiff's orchard, that may have constituted a nuisance.

**338.** However, in this case there was no evidence led to that effect. The defendant sprayed the herbicide in windy conditions on 10 September 2011. There was no evidence that that had occurred before, or after, that date. In these circumstances, the court holds that that isolated event did not constitute a private nuisance at law.

**339.** Turning now to the issue of the rule in *Rylands v Fletcher* (1866) LR 1 Ex. 265; the Supreme Court in *Hanrahan* also offered helpful guidance on the application of this rule. Henchy J adopted the dicta of Blackburn J, in the case of *Rylands v Fletcher* itself, wherein he described the operation of the rule in the following way at p. 279:

> "*We think that the true rule of law is that the person who for his own purposes brings on his land and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and if he does not do so is prima facie answerable for all the damage which is the natural consequence of its escape. He can excuse himself by showing that the escape was owing to the plaintiff's default; or, perhaps, that the escape was the consequence of vis major or the act of God; but as nothing of the sort exists here, it is unnecessary to inquire what excuse would be sufficient*."

**340.** In his judgment in the *Rylands v Fletcher* case, the Lord Chancellor referred to the requirement that the use of the land be 'non-natural' in nature. The application of that rule is more difficult in the context of a substance like herbicide, as was used in this case. There is an argument that the use of herbicide on farmlands is a natural use of those lands.

**341.** McMahon and Binchy draw a distinction between domestic and non-domestic uses of land at para. 25.19. They opine that the domestic use of electricity or gas will not fall within the scope of the rule, whereas the non-domestic use of the same substances, may give rise to liability. This distinction is useful. For example, if one were using herbicide in a small quantity in one's back garden in order to fertilise a small tomato plant, it is unlikely to give rise to liability under the tort of *Rylands v Fletcher*,

as it is a domestic use of herbicide. However, in this case, the defendants were engaged in the large-scale spraying of the herbicide across their potato fields, with commercialised equipment, being the Knight sprayer. The court finds this to be a non-domestic use of the land, which is in turn, non-natural.

**342.** There is an obvious danger that if herbicide were to escape, it would do mischief, particularly in circumstances where the container of herbicide contained a warning about its hazardous nature when in contact with broad-leafed plants. It specifically warned of the necessity of avoiding spray drift onto non-target areas.

**343.** In these circumstances, I am satisfied that the conduct of the defendant in this case, gives rise to a liability on their part under the rule in *Rylands v Fletcher*, for which the plaintiff is entitled to damages in respect of the damage to his crop of apples.

**Conclusions on Quantum.**

**344.** In relation to the issue of the quantum of damage suffered by the plaintiff, the court accepts the evidence given by the accountant called on behalf of the plaintiff, Mr. David Bolger. The figure that Mr. Bolger had been given by the plaintiff of €9 per box, as the price that he would have obtained for undamaged apples, appears reasonable, having regard to the figures quoted on the Department of Agriculture website, which disclosed that the price obtained for eating apples ranged from €6/7 to €12/14 per box, in the relevant period.

**345.** The court accepts the evidence of Mr. Bolger that by subtracting the price actually obtained by the plaintiff for the apples from the harvest of 2011, from the price that he could have expected to have obtained, if the apples were in an undamaged condition and were sold directly into the fresh fruit market; this establishes a loss on the harvest of €88,243.54. The court finds that this sum represents the amount that was lost by the plaintiff as a result of the damage to his orchard, which was caused by the actions of the defendant.

**346.** Insofar as the figures for gross receipts for the year 2011, showed an increase from 2010, the court accepts the evidence of Mr. Donnelly, that that increase was due to the fact that in the earlier part of 2011 he would have been selling some apples from the harvest of 2010, which had been kept in cold storage for gradual release onto the fresh fruit market in the first half of 2011; and that given the damage to the crop of 2011, he had had to sell the entire of the 2011 harvest immediately for processing, rather than by storing some of the harvest in cold storage for subsequent release onto the fresh fruit market. Thus, the court is satisfied that while the global sales figure for 2011, was greater than that for

either 2010 or 2012, that is explained in the manner set out above.

**Final Order.**

**347.** Having regard to the findings made by the court in its judgment herein, it is proposed that the final order of the court will provide as follows:

(a) The court refuses the reliefs sought by the defendant in their notice of motion dated 4 February 2022;

(b) Judgment for the plaintiff in the sum of €88,243.54.

**348.** As the plaintiff has been entirely successful in this action, the court would propose to make an order for payment by the defendant of the plaintiff's costs, to include all reserved and discovery costs and the costs of submissions. The court does not propose to make a separate order for costs in respect of the motion, as it was heard as part of the main action. If either of the parties are of the view that a different form of order should be made, the parties can make brief written submissions on that issue.

**349.** As this judgment is being delivered electronically, the parties shall have three weeks within which to furnish brief written submissions on the terms of the final order and on costs and on any other matters that may arise.

**350.** The matter will be listed for mention for the purpose of making final orders at 10.30 hours on 5th March 2024.