Federal Court  Cour fédérale

Date: 20221110

Docket: T-604-19

Citation: 2022 FC 1422

Ottawa, Ontario, November 10, 2022

PRESENT: The Honourable Madam Justice Aylen

BETWEEN:

UPL NA INC., ARYSTA LIFESCIENCE NORTH AMERICA, LLC and UPL AGROSOLUTIONS CANADA INC.

Plaintiffs

and

AGRACITY CROP & NUTRITION LTD. and NEWAGCO INC.

Defendants

PUBLIC JUDGEMENT AND REASONS
(Confidential Judgement and Reasons issued on October 19, 2022)

I. Introduction

[1] The parties are competitors in the agricultural crop protection industry. The Plaintiffs assert that, in March of 2019, the Defendants jumped the gun by launching a copycat generic flucarbazone sodium herbicide to control wild oats and other grassy and broadleaf weeds in crops

of wheat prior to the expiry of the Plaintiffs' patent (Canadian Patent No. 2,346,021) [021 Patent] just six months later. The Plaintiffs assert that the Defendants are jointly and severally liable for infringement and inducement for the infringing generic herbicides sold in 2019.

[2] The Defendants defend the Plaintiffs' allegations of infringement and inducement on the basis that the Defendants did not infringe the asserted claims of the 021 Patent and that the asserted claims of the 021 Patent are invalid. With respect to invalidity, the Defendants assert that: (i) the subject matter of the claims was obvious in view of what was already publicly known; (ii) the subject matter of the claims was anticipated by United States Patent No. 5534486 [486 Patent] and Canadian Patent No. 2,064,636 [636 Patent]; (iii) the claims are overly broad, claiming more than what the inventors actually made or disclosed; and (iv) the 021 Patent specification fails to meet the sufficiency requirements of subsection 27(3) of the *Patent Act*.

[3] By the conclusion of the trial, the Defendants no longer denied that one of the Defendants, AgraCity Crop & Nutrition Ltd. [AgraCity], infringed and induced infringement of the asserted claims of the 021 Patent, but continued to deny that NewAgco Inc. [NewAgco] had any liability to the Plaintiffs.

[4] For the reasons that follow, I find that the asserted claims of the 021 Patent are valid and were infringed by AgraCity. The Plaintiffs have not established any liability on the part of NewAgco. AgraCity shall pay $227,409 to the Plaintiffs as disgorgement of their profits on the sale of their infringing generic flucarbazone sodium herbicide, together with prejudgment and post-judgment interest.

II. Background

A. The Parties

[5] The Plaintiff, Arysta LifeScience North America, LLC [Arysta], is a California corporation with an office in Cary, North Carolina and was previously known as Arysta LifeScience North America Corporation and before that, as Arvesta Corporation. At all material times, Arysta was the owner of the 021 Patent.

[6] The Plaintiff, UPL AgroSolutions Canada Inc. [UPL Canada], is a British Columbia corporation with an office in Vancouver, British Columbia and was previously known as Arysta LifeScience Canada Inc. UPL Canada markets, sells and distributes in Canada a flucarbazone sodium herbicide under the brand name EVEREST and sells an identical flucarbazone sodium herbicide rebranded as SIERRA to a third party company called Syngenta.

[7] The Plaintiff, UPL NA Inc. [UPL NA], is a Delaware corporation with an office in King of Prussia, Pennsylvania. Since 2019, UPL NA has manufactured the EVEREST and SIERRA products and sold them to UPL Canada for distribution in Canada.

[8] In February of 2019, UPL Limited, an international crop protection company, acquired Arysta. UPL Limited is the parent company of UPL NA and UPL NA is the parent company to each of Arysta and UPL Canada.

[9] The Defendant, AgraCity, is a Saskatchewan corporation with an office in Saskatoon, Saskatchewan and is a distributor of generic crop protection products, including a generic flucarbazone sodium herbicide under the brand name HIMALAYA. AgraCity sells HIMALAYA directly to farmers, who must hold a membership with an organization known as Farmers of North America.

[10] The Defendant, NewAgco, is a Saskatchewan corporation with an office in Saskatoon, Saskatchewan. It holds registrations with the Pest Management Regulatory Agency for generic herbicide products, including HIMALAYA.

B. The Regulation of Herbicides in Canada

[11] Health Canada's Pest Management Regulatory Agency [PMRA] is responsible for pesticide regulation in Canada, including conventional pesticides such as herbicides for use in agricultural crops. Companies seeking to market and sell herbicides in Canada must register the proposed herbicide with the PMRA and obtain approval of the herbicide's proposed label. The herbicide's label outlines who can use the herbicide and under what circumstances it can be used.

[12] The parties agree that purchasers of herbicides, such as EVEREST and HIMALAYA, are required pursuant to section 6(5)(b) of the *Pest Control Products Act*, SC 2002, c 28, to follow the label instructions when using the herbicides.

C. The Plaintiffs' Flucarbazone Sodium Herbicide Business

[13] In 2000, the PMRA approved the application for two herbicidal products: (a) EVEREST Technical, which is the flucarbazone sodium active ingredient in EVEREST; and (b) EVEREST 70 WDG, which is a 70% water dispersible granule formulation. EVEREST 70 WDG is a dry formulation and was approved for pre-plant, pre-emergence and post-emergence application on spring wheat (excluding durum wheat) and for post-emergence application on spring wheat (including durum wheat) for the control of wild oats and certain other grassy and broadleaf weeds.

[14] In 2002, Arysta (then known as Arvesta Corporation) purchased from Bayer Corporation its flucarbazone sodium business for in excess of $100 million, which purchase included the pending application for the 021 Patent and the existing PMRA approvals of the EVEREST herbicides.

[15] In 2011, the Plaintiffs obtained approval for EVEREST 2.0, the second generation EVEREST product. Unlike the first generation product, this version: (a) included a safener supplied by Syngenta that further improved the herbicide's performance by further reducing the risk of crop injury; and (b) was a liquid suspension product to be used only as a post-emergent herbicide.

[16] In 2018, the Plaintiffs obtained approval for EVEREST 3.0 AG, which is the successor product to EVEREST 2.0 and the product being manufactured, distributed and sold by the Plaintiffs at all times relevant to this action. EVEREST 3.0 AG, which is also a liquid suspension

product, includes improvements that enhance the product's shelf-life and increase product stability. EVEREST 3.0 AG was approved for post-emergent application on spring wheat for the control of wild oats and other grassy and broadleaf weeds.

[17] Since 2011, the Plaintiffs have had an agreement with Syngenta, pursuant to which Syngenta provides the Plaintiffs with the safener included in EVEREST 2.0 and EVEREST 3.0 AG and the Plaintiffs manufacture and sell to Syngenta a private label/rebranded version of EVEREST called SIERRA. Other than the difference in name, the EVEREST and SIERRA products are identical and are approved by the PMRA for the same use.

[18] Until 2019, UPL Canada and Syngenta were the sole suppliers of flucarbazone sodium herbicide products in Canada.

[19] The EVEREST products have become the Plaintiffs' flagship product line in Canada, generating tens of millions of dollars in revenue on an annual basis from sales to wheat growers in western Canada. The EVEREST products now represent approximately one third of the Plaintiffs' Canadian business.

D. The Defendants' Flucarbazone Sodium Herbicide Business

[20] In 2017, Arysta was notified by the PMRA that NewAgco had filed an application to register a generic flucarbazone sodium technical and intended to rely on Arysta's data for EVEREST Technical in support of its application.

[21] Once notified by the PMRA, the Plaintiffs contacted the Defendants regarding, among other things, the 021 Patent and demanded that the Defendants delay the launch of their generic flucarbazone sodium herbicide until the expiry of the 021 Patent in September 2019. The Defendants refused to do so, asserting that the 021 Patent was invalid.

[22] In March of 2019, NewAgco received approval from the PMRA for its HIMALAYA Technical and HIMALAYA end-use herbicide. HIMALAYA was approved for pre-plant, pre-emergence and post-emergence application on spring wheat (excluding durum wheat) and for post-emergence application on spring wheat (including durum wheat) for control of wild oats and certain other grassy and broadleaf weeds. The label for HIMALAYA lists NewAgco as the registrant and AgraCity as the distributor of the product.

[23] Following receipt of approval from the PMRA, AgraCity commenced marketing and selling HIMALAYA. On March 6, 2019, AgraCity issued a press release on their website entitled "HUGE NEWS - HIMALAYA™ Same Active As Everest Is Now Available From AgraCity", which stated, in part:

> Today, AgraCity Canada (NewAgco) announced that they have received regulatory approval through the Canadian Pest Management Regulatory Agency (PMRA) for Himalaya™, the first generic version of flucarbazone herbicide.
>
> "We are excited to be bringing this new product to Western Canadian wheat growers, as it will give them an affordable new option to control grass and broadleaf weeds in wheat, plus it will have the same quality and high performance of the brand name flucarbazone products on the market today" says Jason Mann, CEO of AgraCity in Saskatoon. "We are looking forward to bringing even more new generic options for Canadian growers in the future".

> Himalaya™, a new product for control of wild oats plus other grass and broadleaf weeds in Spring and Durum Wheat is now available from AgraCity for 2019!
>
> Himalaya, same active as EVEREST®, provides the same quality and high-performance control of wild oats, grass and broadleaf weeds as the brand name flucarbazone, and also offers control of Group 1 resistant wild oats and green foxtail, flushing control of wild oats, a wide window of application, excellent crop safety, and numerous tank mix options.

[24] While marketed as having the same active ingredient as EVEREST, HIMALAYA does not actually contain the safener technology included in the EVEREST products.

[25] At some point in time, NewAgco and AgraCity entered into a verbal agreement pursuant to which AgraCity agreed to pay to NewAgco a royalty in exchange for the ability to distribute products that are covered by PMRA approvals held by NewAgco, including the approvals for HIMALAYA. The royalty rate is calculated as [redacted] of AgraCity's gross revenue less costs of goods sold and less freight.

[26] Notwithstanding the aforementioned agreement and the sale of HIMALAYA in 2019, no royalty was actually paid by AgraCity to NewAgco in 2019 in respect of any HIMALAYA products and there was no entry made in AgraCity's financial records of any deferral of any royalty payment for HIMALAYA products in 2019. The payment of royalties resumed in 2020 when the injunction (discussed below) was lifted.

E. The Action and the Injunction

[27] On April 9, 2019, the Plaintiffs commenced this patent infringement action and on the same day, the Plaintiffs served and filed a motion seeking an interim injunction to prevent the Defendants from selling and distributing HIMALAYA. The injunction was granted on April 25, 2019 and amended on March 18, 2020, so as to, among other things, provide for the termination of the injunction upon the expiry of the 021 Patent.

[28] The parties are in agreement that the number of jugs of HIMALAYA sold from the date of the product's launch until the issuance of the injunction was limited to only [redacted] jugs. The parties also agree that those jugs of HIMALAYA were sold and marketed by AgraCity for use in accordance with HIMALAYA's end-use label.

III. The Patents at Issue in this Proceeding

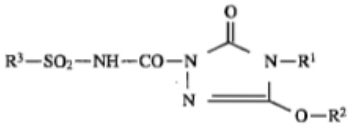
[29] Three patents were addressed by the parties and are relevant to this proceeding – the 021 Patent and two related pieces of prior art upon which the Defendants rely for their allegations of obviousness and anticipation – namely, the 486 Patent and the 636 Patent. I will address them in chronological order.

A. The 486 Patent

[30] The 486 Patent, entitled "Herbicidal Sulphonylaminocarbonyltriazolinones Having Substituents Bonded Via Oxygen", was granted on July 9, 1996 to Bayer Aktiengesellschaft and lists as inventors three of the same inventors as the 021 Patent. The priority application for the 486 Patent was German patent application P 41 10 795.0 filed April 4, 1991.

[31] Column 1 of the 486 Patent states that the invention relates to new sulphonylaminocarbonyltriazolinones [SATCs] having substituents bonded via oxygen, to a plurality of processes and novel intermediates for their preparation and to their use as herbicides. The 486 Patent states that the inventors discovered that SATCs having substituents bonded via oxygen of the general formula (I):

Herbicidal sulphonylaminocarbonyltriazolinones having substituents bonded via oxygen of the formula



(I)

in which

R^1 represents hydrogen, amino, or an optionally substituted alkyl, alkenyl, alkinyl, cycloalkyl, aralkyl, aryl, alkylamino, cycloalklamino or dialkylamino radical,

R^2 represents an optionally substituted alkyl, alkenyl, alkinyl, cycloalkyl, cycloalkenyl, aralkyl or aryl radical, and

R^3 represents an optionally substituted alkyl, aralkyl, aryl or heteroaryl radical,

and salts thereof, with the exception of the compounds:

2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-methoxy-2,4-dihydro-3H-1,2,4-triazol-3-one,

2-(2-trifluoromethoxy-phenylsulphonylaminocarbonyl)-4-cyclopropyl-5-methoxy-2,4-dihydro-3H-1,2,4- triazol-3-one,

2-(2-difluoromethoxy-phenylsulphonylaminocarbonyl)-4-cyclobutyl-5-ethoxy-2,4-dihydro-3H-1,2,4-triazol-3-one, and

2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-ethyl 5-ethoxy-2,4-dihydro 3H-1,2,4-triazol-3-one

and their salts are distinguished by a powerful herbicidal activity and a surprisingly better herbicidal activity than the known compound 2-(2-chlorophenylsulphonylaminocarbonyl)-4,5-dimethyl-2,4-dihydro-3H-1,2,4-triazol-3-one, which has a similar structure.

[32] Column 28 of the 486 Patent states:

> The active compounds, according to the invention **can be used as defoliants, desiccants, agents for destroying broadleaved plants and, especially, as weed-killers**. By weeds, in the broadest sense, there are to be understood all plants which grow in locations where they are undesired. **Whether the substances according to the invention act as total or selective herbicides depends essentially on the amount used**.
>
> The active compounds according to the invention can be used, for example, in connection with the following plants:
>
> Dicotyledon weeds of the genera: *Sinapis, Lepidium, Galium, Stellaria, Matricaria, Anthemis, Galinsoga, Chenopodium, Urtica, Senecio, Amaranthus, Portulaca, Xanthium, Convolvulus, Ipomoea, Polygonum, Sesbania, Ambrosia, Cirsium, Carduus, Sonchus, Solanum, Rorippa, Rotala, Lindernia, Lamium, Veronica, Abutilon, Emex, Datura, Viola, Galeopsis, Papaver, Centaurea, Trifolium, Ranunculus* and *Taraxacum*.
>
> Dicotyledon cultures of the genera: *Gossypium, Glycine, Beta, Daucus, Phaseolus, Pisum, Solanum, Linum, Ipomoea, Vicia, Nicotiana, Lycopersicon, Arachis, Brassica, Lactuca, Cucumis* and *Cucurbita*.
>
> Monocotyledon weeds of the genera: *Echinochloa, Setaria, Panicum, Digitaria, Phleum, Poa, Festuca, Eleusine, Brachiaria, Lolium, Bromus, Avena, Cyperus, Sorghum, Agropyron, Cynodon, Monochoria, Fimbristylis, Sagittaria, Eleocharis, Scirpus, Paspalum, Ischaemum, Sphenoclea, Dactyloctenium, Agrostis, Alopecurus* and *Apera*.
>
> Monocotyledon cultures of the genera: *Oryza, Zea, Triticum, Hordeurn, Avena, Secale, Sorghum, Panicurn, Saccharum, Ananas, Asparagus* and *Allium*.

> However, the use of the active compounds according to the invention is in no way restricted to these genera, but also extends in the same manner to other plants.
>
> **The compounds are suitable, depending on the concentration, for the total combating of weeds**, for example on industrial terrain and rail tracks, and on paths and squares with or without tree plantings. Equally, the compounds can be employed for combating weeds in perennial cultures, for example afforestations, decorative tree plantings, orchards, vineyards, citrus groves, nut orchards, banana plantations, coffee plantations, tea plantations, rubber plantations, oil palm plantations, cocoa plantations, soft fruit plantings and hopfields, on lawns, turf and pasture-land, and for **the selective combating of weeds in annual cultures**.
>
> **Some of the compounds of the formula (I) according to the invention are suitable for total or semi-total weed control, some for the selective control of monocotyledon and dicotyledon weeds in monocotyledon and dicotyledon cultures, both pre-emergence and post-emergence**.
>
> [Emphasis added]

[33] The 486 Patent sets out 327 preparation examples of the compounds of the formula (I), with differing combinations of chemical structures for each of R_1, R_2 and R_3. Examples 79 and 321 provide the substitutions required to make the structure of the compound of formula (I) of the 021 Patent and its salt.

[34] The 486 Patent sets out two use examples (A and B), where the known compound 2-(2-chlorophenylsulphonylaminocarbonyl)-4,5-dimethyl-2,4-dihydro-3H-1,2,4-triazol-3-one is a comparative compound and is described as compound (A). Example A involved a post-emergence test. No details were provided as to which crops and which weeds were used for the testing and how many compounds were tested. No specific test data was provided, but the patent states that:

> In this test, a considerably more powerful action against weeds than the known compound (A) is shown, for example, by the compounds of Preparation Examples 1, 2, 3, 53, 54, 55, 56, 57, 58, 64, 65 and 67, while having, in some cases, good crop plant compatibility.

[35] Flucarbazone sodium is not among the listed compounds and no particulars are provided as to which compounds had good crop plant compatibility and for which crops they exhibited compatibility.

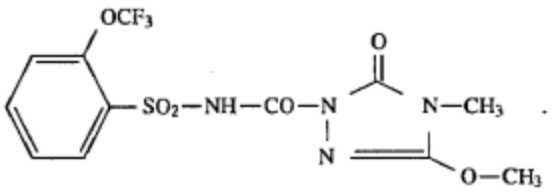
[36] Example B involved a pre-emergence test. Again, no details were provided as to which crops and which weeds were used for the testing and how many compounds were tested. No specific test data was provided, but the patent states that:

> In this test, a considerably more powerful action against weeds than the known compound (A) is shown, for example, by the compounds of Preparation Examples 2, 54 and 69, while having, in some cases, good crop plant compatibility.

[37] As with Example A, flucarbazone sodium is not among the listed compounds and no particulars are provided as to which compounds had good crop plant compatibility and for which crops they exhibited compatibility.

[38] The 486 Patent has 11 claims covering various compounds of the formula (I), where claim 1 is for the SATC of the formula (I). Claim 10 is directed to the compound now known as flucarbazone and its salt:

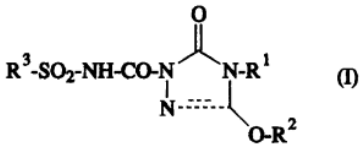
10. A compound or salt thereof according to claim **1**, wherein such compound is



B. The 636 Patent

[39] The 636 Patent, entitled "Sulphonylaminocarbonyltriazolinones Having Substituents Bonded Via Oxygen", was granted on December 23, 1997 to Bayer Aktiengesellschaft and lists the same inventors as the 486 Patent. The priority application for the 636 Patent was also German patent application P 41 10 795.0 filed April 4, 1991. The 636 Patent is the Canadian equivalent of the 486 Patent.

[40] The abstract of the 636 Patent states that the invention relates to novel SATCs of formula (I) having substituents bonded via oxygen and to salts thereof, to a plurality of processes and novel intermediates for their preparation and to their use as herbicides. It provides that the active substances are those of the formula (I)



(I)

in which R^1 represents hydrogen, amino, or an optionally substituted radical from the series comprising alkyl, alkenyl, alkinyl, cycloalkyl, aralkyl, aryl, alkylamino, cycloalkylamino, dialkylamino, R^2 represents an optionally substituted radical from the series comprising alkyl, alkenyl, alkinyl, cycloalkyl, cycloalkenyl, aralkyl, aryl, and R^3 represents an optionally substituted radical from the series comprising alkyl, aralkyl, aryl, heteroaryl, with the exception of 2-(2-methoxycarbonylphenylsulphonyl-aminocarbonyl)-4-methyl-5-methoxy-2,4-dihydro-3H-1,2,4,-triazol-3-one.

[41] The 636 Patent states that the application has been divided and the 636 Patent application (parent application) relates to compounds of formula (I), processes for preparing compounds of formula (I) herbicidal composition containing compounds of formula (I) and uses of the compounds of formula (I), and compositions thereof, as herbicides.

[42] Like the 486 Patent, the 636 Patent notes that the SATCs having substituents bonded via oxygen of the general formula (I) and their salts are distinguished by a powerful herbicidal activity and a surprisingly better herbicidal action than the known compound 2-(2-chlorophenylsulphonylaminocarbonyl)-4,5-dimethyl-2,4-dihydro-3H-1,2,4-triazol-3-one, which has a similar structure.

[43] The 636 Patent contains the same language as Column 28 of the 486 Patent regarding the uses of the active compounds according to the invention.

[44] The 636 Patent sets out 186 preparation examples of the compounds of the formula (I), with differing combinations of chemical structures for each of R_1, R_2 and R_3. Example 79 provides the substitutions required to make the structure of the compound of formula (I) of the 021 Patent.

[45] The 636 Patent sets out the same two use examples as the 486 Patent, reporting identical findings and providing no additional information regarding the parameters of the testing that was conducted.

[46] The 636 Patent has 33 claims covering various compounds of the formula (I), including the compound now known as flucarbazone (claim 12). Claim 35 claims a compound of formula (I) as defined in any one of claims 1 to 33 in which the compound is in the form of a salt, and thus includes flucarbazone sodium.

[47] The 636 Patent has 16 claims directed at methods of combating weeds. For example, claims 40 and 41 provide:

> 40. A method for combating weeds which comprises applying to the weeds, or to a habitat thereof, a herbicidally effective amount of a compound according to any one of claims 1 to 33.
>
> 41. A method for combating weeds which comprises applying to the weeds, or to a habitat thereof, a herbicidally effective amount of a compound according to claim 35.

IV. The 021 Patent

[48] The 021 Patent, entitled "Selective Herbicides Based on a Substituted Phenylsulphonylaminocarbonyltriazolinone" relates to selective herbicidal compositions of a known compound (now named flucarbazone) and/or its salts, to their use for the selective control of weeds in crops of cereal, in particular crops of wheat, and to methods for the selective control of weeds in crops of cereals by applying the compositions together with surfactants and/or customary extenders. Dieter Feucht, Hans-Joachim Santel, Klaus Lurssen, Ingo Wetcholowsky, Peter Dahmen and Klaus-Helmet Muller are the named inventors of the 021 Patent.

[49] The 021 Patent was filed by Bayer Aktiengesellschaft on September 21, 1999, laid open for public inspection on April 13, 2000 and issued by the Canadian Patent Office on August 25, 2009 to Arysta. The priority application for the 021 Patent was German patent application DE198 45 407.4, which was filed October 2, 1998. The 021 Patent expired on September 21, 2019.

[50] The 021 Patent expressly acknowledges that SATCs, including 2-(2-trifluoromethoxy-phenylsulphonylaminocarbonyl)-4-methyl-5-methoxy-2,4-dihydro-3H-1,2,4-triazol-3-one (now known as flucarbazone), and their salts, processes for preparing these compounds and their use as herbicides are the subject of earlier patent applications, including the 486 Patent. The 021 Patent states that while these comparative SATC compounds have a molecular structure which is very similar to that of flucarbazone, these comparative compounds show shortcomings in their activity or activity gaps in the case of certain weeds.

[51] The 021 Patent goes on to state that:

> Surprisingly, it has now been found that the compound [flucarbazone] and salts thereof, in particular the sodium salt of the compound of the formula (I), in comparison with the above-mentioned structurally similar compounds, **show considerably stronger activity against some weeds in cereal crops which are difficult to control, combined with very good compatibility with cereal species, such as, in particular, wheat, and are therefore particularly suitable for the efficient and selective control of weeds in cereals, in particular in wheat**. The activity gaps observed with the abovementioned comparative compounds which are closely related to (I) do not occur in the weed spectrum of the compound (I) and its salts.
>
> […]
>
> The compound of the formula (I) and its Na salt are already known (cf. US-5 534 486 – Examples 79 and 321).
>
> The compound of the formula (I) and its salts have a broad herbicidal activity. They can be used, for example, for controlling the following weeds:
>
> Dicotyledonous weeds of the orders: *Sinapis, Lepidium, Galium, Stellaria, Matricaria, Anthemis, Galinsoga, Chenopodium, Urtica, Senecio, Amaranthus, Portulaca, Xanthium, Convolvulus, Ipomoea, Polygonum, Sesbania, Ambrosia, Cirsium, Carduus, Sonchus, Solanum, Rorippa, Rotala, Lindernia, Lamium, Veronica, Abutilon, Emex, Datura, Viola, Galeopsis, Papaver, Centaurea, Trifolium, Ranunculus, Taraxacum*.
>
> Monocotyledonous weeds of the orders: *Echinochloa, Setaria, Panicum, Digitaria, Phleum, Poa, Festuca, Eleusine, Brachiaria, Lolium, Bromus, Avena, Cyperus, Sorghum, Agropyron, Cynodon, Monochoria, Fimbristylis, Sagittaria, Eleocharis, Scirpus, Paspalum, Ischaemum, Sphenoclea, Dactyloctenium, Agrostis, Alopecurus, Apera, Aegilops, Phalaris*.
>
> However, the use of the compound (I) and its salts is by no means limited to these orders but extends in the same manner to other plants as well.
>
> The compound of formula (I) and its salts have strong herbicidal activity and a broad spectrum of activity when used on the soil and

> on above-ground parts of plants. **They are suitable for the selective control of monocotyledonous and dicotyledonous weeds in monocotyledonous crops, especially in cereals, in particular in wheat, both by the pre-emergence and by the post-emergence method**.
>
> **Problematic weeds which can be controlled particularly well with the compound of the formula (I) and its salts, in particular its sodium salt, and whose control is less likely to succeed with both conventional herbicides and more recent compounds of a similar molecular structure are, in particular**, *Agropyron, Alopecurus, Amaranthus, Apera,* ***Avena****, Brassica, Bromus, Capsella, Digitaria, Echinochloa, Erysimum, Lolium, Matricaria, Phalaris, Poa, Polygonum, Setaria, Sinapsis, Thlapsi* and *Veronica*.
>
> […]
>
> The amount of active compound used can vary within a substantial range. It depends essentially on the nature of the desired effect. In general, the amounts used are between 1 g and 1 kg of active compound per hectare of soil surface, preferably between 5 g and 0.5 kg per ha.
>
> [Emphasis added]

[52] The 021 Patent sets out four use examples (A, B, C and D) using certain comparative compounds (compounds A through H), with seven of the eight comparative compounds being compounds identified in the 486 Patent.

[53] Example A was a pre-emergence greenhouse test in which the selective-herbicidal activity of six of the comparative compounds was assessed against that of flucarbazone sodium in crops of wheat with eight weeds (including wild oats), with one additional comparative compound assessed for three weeds (including wild oats). The 021 Patent reports that flucarbazone sodium exhibited very strong activity (efficacy of 80-100%) against all eight weeds, combined with very good compatibility with the wheat crop. Comparator compounds A, C, D, E and F exhibited

considerably weaker herbicidal activity, compound B was not compatible with wheat and flucarbazone sodium demonstrated considerable superiority over comparative compound G. Specific data was reported in Tables A1 and A2.

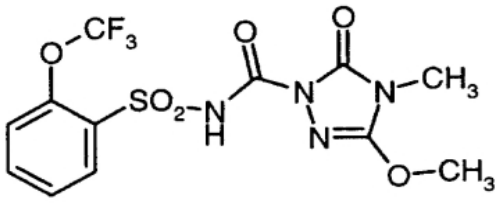
[54] Example B was a post-emergence greenhouse test in which the selective-herbicidal activity of six of the comparative compounds was assessed against that of flucarbazone sodium in crops of wheat with seven weeds (including wild oats), with two additional comparative compounds assessed for three weeds (including wild oats). The 021 Patent reports that flucarbazone sodium exhibited strong activity (efficacy of 70-100%) against seven weeds (including wild oats), combined with very good compatibility with the wheat crop. Comparative compounds A, B, C, D, E and F exhibited considerably weaker herbicidal activity and flucarbazone sodium demonstrated considerable superiority over comparative compounds G and H. Specific data was reported in Tables B1 and B2.

[55] Example C was a post-emergence field test in which the selective-herbicidal activity of comparative compounds B and D was assessed against that of flucarbazone sodium in crops of summer wheat in Canada against five economically important weeds (including wild oats). The 021 Patent reports that flucarbazone sodium exhibited considerably stronger activity against wild oats than comparative compounds B and D, combined with approximately the same crop compatibility. Specific data was reported in Table C.

[56] Example D was also a post-emergence field test, in which the selective-herbicidal activity of flucarbazone sodium was assessed in crops of summer wheat in Canada and the United States

against seven economically important weeds (including wild oats). A total of 557 tests on weeds were reported (263 of which were in relation to wild oats) and 408 crop damage tests were reported. The 021 Patent states that the tests demonstrate that flucarbazone sodium is particularly suitable for controlling all seven weeds (including wild oats) in cereals. Specific data was reported in Table D.

[57] Claims 1, 3, and 6 through 10 of the 021 Patent are at issue in this action [Asserted Claims]. The relevant claims of the 021 Patent are as follows:

> 1. A selective-herbicidal composition, comprising an effective amount of a sodium salt of the compound 2-(2-trifluromethoxy-phenylsulphonylaminocarbonyl)-4-methyl-5-methoxy-2,4-dihydro-3H-1, 2, 4-triazol-3-one of formula (I):
>
> 
>
> (I)
>
> formulated as 70 WP or 70 WG, 70% w/w water dispersible powder or granules, preparation.
>
> 2. Use of the sodium salt of the compound of formula (I) as defined in claim 1 for the selective control of weeds in crops of cereals.
>
> 3. The use according to claim 2, which is for the selective control of weeds in crops of wheat.
>
> …
>
> 5. A method for the selective control of at least one weed selected from *Agropyron, Avena, Brassica, Capsella, Lolium, Sinapsis, Thlapsi, Veronica* and combinations thereto, in a cereal crop, comprising adding the sodium salt of the compound of formula (I) as defined in claim 1 to the crop, the crop environment or both.

> 6. The method according to claim 5, wherein the crop comprises spring-sown, wheat.
>
> 7. The method of claim 5 or 6, wherein the at least one weed is selected from the group consisting of *Agropyron*, *Avena*, *Lolium*, and *Veronica*.
>
> 8. The method of claim 5 or 6, wherein the at least one weed comprises *Avena*.
>
> 9. The method of any one of claims 5 to 8, wherein the sodium salt of the compound of formula (I) is applied at an application rate of 30 to 60 g/ha.
>
> 10. The method of claim 9, wherein the sodium salt of the compound of formula (I) is applied as 70 WP or 70 WG formulation.

[58] The Defendants did not dispute the Plaintiffs' assertion that claims 3 and 6 through 9 of the 021 Patent would cover the use of EVEREST 3.0 AG and SIERRA 3.0 AG in accordance with their end-use product labels and I accept that, on the evidence before me, the Plaintiffs have established that to be the case.

V. The Trial

A. Fact Witnesses

[59] The Plaintiffs called one fact witness at trial, Mr. Trent McCrea. Mr. McCrea is the Country Head for UPL Canada and has worked in the agricultural industry for more than 20 years, seventeen of which were with UPL Canada. As Country Head, he has general management responsibilities for the business, including overseeing the team and the company's marketing of products throughout Canada. Prior to holding the position of Country Head, he was the Territory

Sales Manager and then the Regional Manager and Marketing Manager. He provided evidence regarding: (a) the corporate history of the Plaintiffs; (b) the sales and marketing of the EVEREST products; (c) the roles of each Plaintiff vis-à-vis the EVEREST products; (d) the various formulations of the EVEREST products sold in Canada and their properties; (e) the acquisition of Bayer's flucarbazone business; (f) the ownership of the 021 Patent; (g) the registrations of the EVEREST products with the PMRA; (h) the labels for the EVEREST products; (i) the agreement between the Plaintiffs and Syngenta and Syngenta's SIERRA products; and (j) the flucarbazone herbicide products sold in the Canadian market, including the launch and sale of the Defendant's HIMALAYA product, as well as other non-flucarbazone sodium herbicides that compete with the EVEREST products.

[60] The Defendants did not raise any concerns regarding Mr. McCrea's testimony and I find that he was a credible witness, in that he was forthright and attempted to respond honestly and accurately to the questions asked of him.

[61] The Defendants also called only one fact witness, Ms. Gail Hoshowsky. Ms. Hoshowsky is an accountant and holds the position of Vice President of Treasury and Corporate Finance of AgraCity. She provided evidence regarding: (a) the general business activities of AgraCity and its products; (b) the organization of the company; (c) the Statement of Operations for the fiscal year 2020 with a comparison to 2019, including an explanation of the various line items; (d) the royalty agreement between AgraCity and NewAgco and any royalties paid to NewAgo for HIMALAYA products for 2019; (e) invoices related to the HIMALAYA product sold in 2019; and (f) accounting services provided by AgraCity to NewAgco.

[62] The Plaintiffs did not raise any concerns regarding Ms. Hoshowsky's testimony and I find that she was a credible witness, in that she was forthright and attempted to respond honestly and accurately to the questions asked of her.

[63] None of the inventors of the 021 Patent or representative of Bayer testified at trial, nor were any documents related to the 021 Patent invention story or the initial development of the compound now known as flucarbazone entered as exhibits at trial.

B. The Technical Expert Witnesses

[64] The Plaintiffs and the Defendants each called one technical expert witness (Dr. Franck Dayan for the Plaintiffs and Dr. Robert Blackshaw for the Defendants) and one financial expert witness (Mr. Errol Soriano for the Plaintiff and Mr. Daniel Ross for the Defendants), for which statements of proposed expertise were exchanged and filed as exhibits. There was no dispute between the parties as to the qualifications of the experts to give expert opinion evidence, nor any challenges regarding any portions of their expert reports (other than a small portion of Mr. Soriano's second report, which was ultimately immaterial). I was satisfied that each of the expert witnesses were qualified to provide expert opinion evidence in accordance with their respective statement of proposed qualification.

(1) Dr. Franck Dayan

[65] Dr. Dayan has a Master's degree and Ph.D. in botany/plant biology and completed post-doctoral research as a Research Plant Physiologist. He worked for 18 years as a Research Plant Physiologist at the Natural Products Utilization Unit of the United States Department of Agriculture Agricultural Research Service and is currently a professor in the Department of Agricultural Biology at Colorado State University. Dr. Dayan was qualified to provide expert opinion evidence in plant physiology and weed science, including the chemistry of herbicides, how herbicides are developed and used to control weeds, how herbicides work (mode of action) to selectively control weeds in useful crops and how weeds become resistant to herbicides.

[66] Dr. Dayan provided two expert reports for trial. In his first expert report dated April 13, 2022, he addressed the following issues:

A. The common general knowledge [CGK] of the person of ordinary skill in the art to whom the 021 Patent is addressed [Skilled Person] relevant to the subject matter of the 021 Patent;

B. How the Skilled Person would have read and understood the 021 Patent and its claims as of April 13, 2000;

C. Whether claims 1, 3 and 6-10 of the 021 Patent read on the HIMALAYA herbicide product and its use in accordance with the product's end-use label;

D. Whether claims 1, 3 and 6-10 of the 021 Patent read on the EVEREST 3.0 AG and SIERRA 3.0 AG product and their use in accordance with their respective end-use labels; and

E. Whether growers that purchased HIMALAYA herbicides in 2019 were likely to have had flucarbazone sodium in their weed management program for that year and, therefore, would have been likely to purchase EVEREST 3.0 AG or SIERRA 3.0 AG if they had not purchased HIMALAYA.

[67] In his second expert report dated May 25, 2022, Dr. Dayan commented on the following:

A. The expert report of Dr. Robert Blackshaw dated April 13, 2022;

B. How the Skilled Person would view the similarities and differences between the 021 Patent and the 636 Patent/486 Patent; and

C. Whether German Patent Application No. DE198 45 407.4 discloses the same subject matter as the 021 Patent.

(2) Dr. Robert Blackshaw

[68] Dr. Blackshaw has a Bachelor of Science degree in Botany/Chemistry and a Master's degree and Ph.D. in weed science. He worked for two years as an Agronomist for the Alberta Wheat Pool and two years as a Pesticide Research and Development Officer for Dupont Canada

Inc. For the 31 years leading up to his retirement, he worked as a Research Scientist with Agriculture and Agri-food Canada, during which time his main research areas included weed management and agronomic cropping systems. He was qualified to provide expert opinion evidence on weed management, including the evaluation of herbicidal activity and crop tolerance of chemical compounds.

[69] He acknowledged that while he has expertise in agronomy and weed science, he did not consider himself an expert in the area of chemistry, chemical compounds or chemical structures. He also acknowledged that he had no knowledge of the EVEREST and HIMALAYA product labels.

[70] Dr. Blackshaw provided two expert reports for trial. In his first report dated April 13, 2022, he addressed the following issues:

A. Some background on weed science, including the type of trials that were commonly performed on herbicides in the late 1990s;

B. The Skilled Person for the 021 Patent;

C. The CGK of the Skilled Person;

D. How the Skilled Person would interpret certain words and phrases used in the claims of the 021 Patent; and

E. The differences between the 021 Patent and the 636 Patent and the 486 Patent.

[71] In his second expert report dated June 29, 2022, Dr. Blackshaw did not set out a specific list of the issues he was asked to address. However, he stated that he was provided with a copy of Dr. Dayan's April 13, 2022 expert report and would comment on certain portions of that report. Specifically, he commented on:

A. His opinion regarding the accuracy of Dr. Dayan's definition of the Skilled Person;

B. Whether information cited by Dr. Dayan as forming part of the CGK of the Skilled Person is information that would be generally known and accepted by the Skilled Person;

C. Dr. Dayan's interpretation of the term "selective" as used in the 021 Patent; and

D. Whether purchasers of HIMALAYA would have purchased non-flucarbazone sodium products had HIMALAYA not been available.

(3) Observations Regarding the Technical Experts' Evidence

[72] The Defendants submit that Dr. Dayan made fundamental errors in his determination of the characteristics and qualities of the Skilled Person and that the manner in which those errors were discovered calls into question whether Dr. Dayan truly understood that his overriding duty was to the Court. I have addressed these allegations in detail below. While there were some errors

made by Dr. Dayan in his articulation of certain attributes of the Skilled Person (which I have, where appropriate, taken into consideration in determining the weight to be given to his evidence as noted below), I nonetheless generally found his evidence to be thorough, knowledgeable and of assistance to the Court.

[73] The Plaintiffs have not raised any concerns regarding Dr. Blackshaw's impartiality and I find that, in relation to the issues to which he was asked to provide an opinion, his opinions were objective and, in many respects, were of assistance to the Court. However, I find that his evidence was not as thorough as that provided by Dr. Dayan, which in part was due to his limited mandate.

C. The Financial Expert Witnesses

(1) Mr. Errol Soriano

[74] Mr. Errol Soriano is a chartered professional accountant, a chartered business valuator and a certified fraud examiner. He was qualified to provide expert opinion evidence on the quantification of financial damages and profits, evaluation of business interests and forensic accounting, including in the context of intellectual property and patent disputes.

(2) Mr. Daniel Ross

[75] Mr. Ross is a chartered professional accountant and a chartered business valuator. He was qualified to provide expert opinion evidence on the quantification of financial damages and profits,

evaluation of business interests and forensic accounting, including in the context of intellectual property and patent disputes.

(3) Observations Regarding the Financial Experts' Evidence

[76] From a review of the expert reports of the financial experts, there were few areas of disagreement between the experts. By the conclusion of trial, the areas of disagreement had all but disappeared.

[77] None of the parties took issues the impartiality of the financial expert witnesses and I found their evidence to be thorough, objective and of assistance to the Court.

VI. Preliminary Issue

[78] At trial, the Defendants raised a number of objections to the Plaintiffs' discovery read-ins. I made a determination in relation to one of the objections during the trial and took two related objections under reserve.

[79] The Plaintiffs sought to read in answers given by Jason Mann, the Defendants' discovery representative, in relation to AgraCity's 2019 and 2020 Agricultural Product Guides. The Defendants did not object to the answers being read in as reflected on the transcript, but rather to the Plaintiffs attempt to include as part of the read-ins the entirety of the Product Guides

themselves. The Defendants assert that the Plaintiffs are improperly attempting to introduce the Product Guides into evidence for the truth of their content, when no actual questions were put to Mr. Mann about the contents of those Product Guides. The Defendants assert that they would be prejudiced by the admission of the Product Guides as the Defendants do not know what use the Plaintiffs intend to make of the content of the Product Guides.

[80] Having reviewed the written closing arguments of the parties and having considered the oral submissions of counsel for the Plaintiffs, I note that the Plaintiffs did not ultimately make any use of either Product Guide. Moreover, I find that the Product Guides are irrelevant to the issues remaining for the Court's determination (given that AgraCity no longer disputes the Plaintiff's allegation of infringement and inducement). As such, the determination of this preliminary issue is of no consequence to my Judgment.

[81] That said, I note that the Plaintiffs have provided the Court with no authority that would permit the Plaintiffs to include the Product Guides as part of the read-ins for the truth of their contents (as opposed to clarifying a discovery answer given by Mr. Mann) and I am not satisfied that it would be appropriate to permit them to do so [see *MediaTube Corp v Bell Canada*, 2016 FC 1066].

VII. The Remaining Issues

[82] Notwithstanding the final joint statement of issues submitted by the parties in advance of trial, the parties confirmed in their oral closing arguments that the issues for the Court's

determination had been narrowed. Importantly, the Defendants no longer deny that AgraCity infringed claim 1 and induced infringement of claims 3 and 6-10 of the 021 Patent by selling and marketing HIMALAYA with the end-use label for the product.

[83] The remaining issues are as follows:

A. Who is the Skilled Person to whom the 021 Patent is addressed?

B. How would the Skilled Person have read and understood the claims of the 021 Patent as of the publication date of April 13, 2000?

C. As of the claim date (October 2, 1998), was the subject matter defined by any of the Asserted Claims of the 021 Patent obvious?

D. As of the claim date (October 2, 1998), was the subject matter defined by any of the Asserted Claims of the 021 Patent anticipated?

E. Was the subject matter of any of the Asserted Claims of the 021 Patent invalid for insufficiency?

F. Was the subject matter of any of the Asserted Claims of the 021 Patent invalid for claims broader?

G. Did NewAgco induce infringement of claims 3 and 6-10 of the 021 Patent?

H. Should NewAgco be found jointly and severally liable for the acts of infringement and/or inducement of AgraCity?

I. What damages did the Plaintiffs suffer?

J. In the event that the Plaintiffs elect for an accounting of the Defendants' profits from infringement of the 021 Patent, what were the Defendants' profits?

K. If the Defendants are liable for damages or profits, what pre-judgment interest rate should be applied?

L. Are the Plaintiffs or the Defendants entitled to an order of costs and if so, in what amount?

VIII. Burdens of Proof

[84] Before turning to the issues, it is important to consider the burden of proof in relation thereto.

[85] Subsection 43(2) of the *Patent Act* provides that a patent is presumed to be valid in the absence of evidence to the contrary. The Defendants therefore bear the onus to prove each of their

invalidity attacks on the standard of the balance of probabilities [see *Eurocopter v Bell Helicopter Textron Canada Ltée*, 2013 FCA 219 at para 105].

[86] The onus rests on the Plaintiffs to prove infringement and inducement on the standard of a balance of probabilities [see *Monsanto Canada Inc. v Schmeiser*, 2004 SCC 34 at para 29].

[87] In terms of remedies, the Plaintiffs bear the burden of establishing their damages and in the case of an election to award an accounting of profits, the Plaintiffs must establish that the Court should exercise its discretion to award an accounting of profits and, if so, the Plaintiffs bear the onus of establishing the sales or revenues earned by the Defendants that are causally attributable to the invention [see *Monsanto, supra* at paras 100-101; *Dow Chemical Corporation v Nova Chemicals Corporation*, 2017 FC 350 at paras 108-110, aff'd 2020 FCA 141 at para 115]. The burden then shifts to the Defendants to provide the elements of costs to be deducted from the sales/revenues in arriving at profits [see *Diversified Products Corp v Tye-Sil Corp* (1990), 32 CPR (3d) 385 (FCTD) at page 390].

IX. The Skilled Person

A. General Principles

[88] The first step in a patent action is to construe the claims of the patent through the eyes and with the CGK of the Skilled Person. As such, the Court must define the Skilled Person.

[89] The Skilled Person is the person to whom the patent is said to be addressed, through whose eyes the Court is to read the patent and who stands as the criterion for determination of obviousness [see *Whirlpool Corp v Camco Inc*, 2000 SCC 67 at para 53; *Amgen Canada Inc v Apotex Inc*, 2015 FC 1261 at para 42]. The Skilled Person has been described as possessing the following attributes:

A. They are sufficiently versed in the art to which the patent relates to enable them, on a technical level, to appreciate the nature and description of the invention and to put it into practice [see *Whirlpool*, *supra* at para 53].

B. They must be capable of understanding the entirety of the patent at issue and are expected to be a person with a practical interest in the invention [see *Whirlpool*, *supra* at para 44; *ViiV Healthcare Company v Gilead Sciences Canada Inc*, 2020 FC 486 at paras 78-79].

C. They have certain qualities of a competent technician (deduction and dexterity) but lack others (inventiveness and imagination) [see *Hospira Healthcare Corporation* v *Kennedy Trust for Rheumatology Research*, 2020 FCA 30 at para 80].

D. They embody the CGK that is generally known and accepted in the field, are unimaginative and uninventive, but reasonably diligent in keeping up with advances. That said, being unimaginative does not strip the technician of the ability to pursue reasonable and logical inquiries [see *Pfizer Canada Inc v Teva Canada Ltd*, 2017 FC 777 at para 185; *Apotex Inc v Syntex Pharmaceuticals International Ltd*., (1999) 1 CPR (4^{th}) 22 (FCTD) at para 39].

E. They adopt a fair and objective approach. They read the patent and the prior art trying to understand what the author meant. They are trying to achieve success, not looking for difficulties or seeking failure [see *Apotex Inc v Sanofi-Synthelabo Canada Inc*, 2008 SCC 61 at para 25; *Free World Trust v Électro Santé Inc*, 2000 SCC 66 at para 44].

F. They address each issue (whether related to construction or validity) at the correct point in time. They understand any differences in the relevant skills or knowledge as of each material date and adopt the proper temporal frame of reference to analyze the issues, without hindsight [see *Janssen Inc v Sandoz Canada Inc*, 2022 FC 715 at para 71].

[90] Expert witnesses assist the Court by opining on the qualifications, relevant experience and knowledge of the Skilled Person and by providing expert evidence so as to put the Court in the position of the Skilled Person at the relevant time [see *Tetra Tech EBA Inc v Georgetown Rail Equipment Company*, 2019 FCA 203 at para 88, citing *Free World*, *supra* at para 51]. As claims construction is a question of law, the Court is not bound by the expert evidence [see *Whirlpool*, *supra* at para 61].

B. Analysis

[91] Dr. Dayan opined that the Skilled Person to whom the Patent is addressed is someone working on developing new selective herbicide products, in industry, government or academia, and that such a person would likely have an advanced degree in plant physiology (including

potentially the study of weed science specifically, which relates to the physiological mechanisms within plants by which weeds are controlled) and a few years of work experience.

[92] Dr. Blackshaw opined that the Skilled Person to whom the Patent is addressed is an agronomist with B.Sc. or M.Sc. training in agronomy, weed science or a related field of study and three to five years of field experience working as an extension agent within government agencies or private companies interested in determining and advising farmers on how best to utilize herbicidal compounds within various cropping systems (i.e. varied crop rotations, tillage systems, soil types). However, in his second report, he stated that an advanced degree (i.e. an M.Sc.) is not necessary to understand the 021 Patent and that a person with a B.Sc. degree and several years of experience in weed management would be able to understand the 021 Patent and the test results described therein.

[93] Dr. Blackshaw defined an agronomist as someone working in agriculture with expertise in crop production and soil management, with knowledge of crop types, crop rotations, crop seeding and harvesting, crop fertilization, pest management, soil types and soil enhancing management practices. Dr. Blackshaw opined that an agronomist would have an interest not only in the weed species listed as being controlled in the 021 Patent, but also as to other additional weed species that might be controlled or suppressed through application of the compounds in the examples. He stated that other use patterns of interests to an agronomist reading the 021 Patent would be the use of flucarbazone sodium as a desiccant or its use in non-selective vegetation management.

[94] Dr. Blackshaw further opined that persons working on developing new selective herbicides would be either a research scientist engaged in developing new active compounds for use as herbicides or a formulation scientist engaged in developing a formulation for a new compound or an improved formulation for an existing active compound. He opined that such individuals would typically have less interest in the 021 Patent as compared to prior patents (such as the 486 Patent and 636 Patent), as the 021 Patent deals with only flucarbazone sodium, whereas the prior art provides information on: (a) the procedures used to generate intermediate compounds and the steps to produce the final compound; (b) converting active compounds into salts that make them more amenable for preparation of appropriate herbicide formulations; and (c) many possible substituents to the core molecule that affect herbicidal activity.

[95] Dr. Blackshaw concluded by stating that the 021 Patent would be of most interest to agronomists, who are familiar with the pre-emergence and post-emergence testing described in Examples A through D of the 021 Patent, with the types of weeds described in these examples and "would be able to use the information in the patent to assess how best to use flucarbazone sodium or the other compounds to combat weeds".

[96] While the technical experts differ on the need for a Master's degree, the more significant difference between them relates to whether the Skilled Person would be someone focused on developing new herbicides or rather, someone advising growers on how to manage weeds using herbicides together with other measures. This begs the question – to whom is the 021 Patent addressed?

[97] I find that the Skilled Person to whom the 021 Patent relates is a weed science professional (who may or may not be an agronomist) working on the research and development of new herbicide products and therefore possessing familiarity with the evaluation of herbicidal compounds and the crop tolerance of compounds. This is consistent with the expressed nature of the 021 Patent – namely, the discovery of a new pattern of selective-herbicidal use for a compound.

[98] I reject Dr. Blackshaw's evidence that the 021 Patent is directed to an agronomist who would look to the 021 Patent as a basis to advise farmers on how best to use flucarbazone sodium to manage weeds. The use of herbicides is regulated, such that herbicides may only be used in accordance with their end-use labels. Dr. Blackshaw admitted on cross-examination that an agronomist (whether an extension agent or not) would not advise growers on the use of herbicides based on information in a patent only.

[99] Moreover, Dr. Blackshaw's evidence on direct examination was that the Skilled Person is someone looking for other uses of flucarbazone beyond those disclosed in the 021 Patent, so as to control other weed species and for use in other crops beyond wheat. I find that this is consistent with Dr. Dayan's characterization of the Skilled Person, as such inquiries form part of the work of a weed scientist looking for an improved formulation for an existing herbicidally-active compound.

[100] Further, an agronomist whose work is directed at advising growers would not be in a position to advise growers on the use of flucarbazone sodium for the control of other weeds or for its use in other crops based on the teachings of the 021 Patent alone and in the absence of PMRA

approval for such uses. In my view, the 021 Patent would not be directed to an agronomist for that purpose.

[101] As to the educational and experiential characteristics of the Skilled Person, I am satisfied that the Skilled Person would hold a B.Sc. or M.Sc. degree in plant physiology, which would include studies in weed science, and a few years of related work experience.

[102] The Defendants raised two issues related to the evidence given by Dr. Dayan on cross-examination, which they assert are significant enough to warrant the Court disregarding the entirety of his evidence and which they assert is contrary to his duty to the Court.

[103] First, the Defendants assert that Dr. Dayan fundamentally misunderstood the characteristics and qualities of the Skilled Person. The Defendants asserts that Dr. Dayan's Skilled Person lacks the ability to understand the 021 Patent and learn what to do next - that is, lacks deductive ability. The Defendants assert that this error was so foundational that all of his opinions and conclusions should be given no weight.

[104] The following exchange occurred on Dr. Dayan's cross-examination, starting on page 207:

> Q. We – we talked about the – the '486 Patent and how a person skilled in the art would – would read that patent. Do you – would you agree with me that the skilled person would be motivated to learn from the information disclosed in the '486 patent?
>
> A. You know, I don't know if the skilled person would be motivated. The people that are involved in understanding what the patent teaches would be motivated. The skilled

person is really being told what to do: Perform the experiment, and report the data. But I don't think the skilled person himself or herself will be the one planning those experiments and deciding what will be done with these compounds.

Q. So – so your skilled person is the worker actually doing the experiments rather than somebody analysing the results of those experiments?

A. Yes.

Q. So your skilled person is the one, or probably more than one because there's a lot of experiments there, who are mechanically carrying out those experiments?

A. Yes. And being able to carry out the experiment, you know, collect the data, put in a form of a report, and then submit it. But that will be the extent, in my opinion, of their contribution.

Q. Right. So – so your skilled person for the '021 patent isn't able to analyze the data from the experiments that are described in the patent?

A. I don't think that is exactly what I said. That person will be able to collect the data and put it together. Yeah, I guess now that I'm thinking through what you just said, yeah, I think it would be more like the inventors who was extremely well trained and skilled – extraordinary – people with extraordinary skills will be able to correctly interpret what is significant about it.

Q. And so your – your testimony is then to be able to interpret the data in the '021 patent that somebody needs to have more than an advanced degree? That's not in plant physiology and so on? That's not enough?

A. So, you know, I want to make sure that I express myself clearly. Somebody skilled in the art who had described it can look at the patent, look at the examples and understand what it means. You know, that – that's about the extent of it.

Q. So in – in your view, Dr. Dayan, would the skilled person be able to read and understand the '486 patent?

A. I mean, it's in English, assuming that person speaks English, they will be able to read it. They will be able to understand

> what it says. What they will not be able to understand is any indication of any pattern of use that can be derived from the data that's disclosed in it.
>
> So, yes, they can read it. They can understand what it says, but they will not be able to make further decisions guiding them into further research.
>
> Q. Right. But your skilled person would be able to mechanically carry out the greenhouse experiments in the '486 patent?
>
> A. Yes, under the guidance of other people such as the inventors that are telling that person what to do, and that skilled person may not exactly know why that work is being carried out; they're just carrying it out and reporting the data.
>
> Q. So your skilled person is someone who just does what – takes the compounds that are given to them, puts them through tests that are told – they are told to do, and writes up a report, and submits it to somebody else?
>
> A. Yes.

[105] The Plaintiffs suggest that the assertion that this evidence is problematic is a red herring. The Plaintiffs assert that the questions and answers alternated between the 486 Patent and the 021 Patent and seemed not so much as about the characteristics of the Skilled Person, but rather about the skill level of persons performing experiments. The Plaintiffs assert that, in any event, Dr. Dayan's evidence is consistent with the law that the Skilled Person lacks inventiveness.

[106] However, the fact that the questioning altered between the 486 Patent and the 021 Patent is irrelevant, as the Skilled Person for the purpose of construing the 021 Patent is the same Skilled Person reviewing the 486 Patent for the purposes of obviousness and anticipation. Moreover, a review of the transcript reveals that Dr. Dayan clearly articulated his view of the attributes of the Skilled Person vis-à-vis the 021 Patent.

[107] I find that, when viewed in its entirety, Dr. Dayan's evidence speaks to the role of the Skilled Person in conducting the types of experiments detailed in the 021 Patent and the 486 Patent and the attributes of such a person as compared to the attributes of the inventor. Dr. Dayan's evidence was that the Skilled Person can read and understand the patents, conduct the experiments described in the patents and compile the data produced from the experiments. The parameters of the experiments and what to do next with the resulting data would be for the inventor to determine, rather than the Skilled Person. In my view, this evidence is consistent with the attributes of the Skilled Person noted in the case law above – such as: being able to, on a technical level, appreciate the nature and description of the invention and put it into practice; being able to understand the entirety of the patent; being unimaginative and uninventive; and having the qualities of a competent technician.

[108] I would note that the fact that Dr. Dayan's Skilled Person does not direct the experiments or decide what to do next is consistent with the "robot curve" discussed and adopted by Justice Hughes in *Amgen Canada Inc v Apotex Inc.*, *supra*, and which robot curve the Defendants rely upon in support of their obviousness arguments. As noted by Justice Hughes, the robot curve describes various forms of work. Creative work is unique, imaginative, non-routine and autonomous, whereas skilled work is standardized, talent-driven, professional and directed. Justice Hughes notes that the Skilled Person is different from the inventor, who does the creative work. Dr. Dayan's Skilled Person fits neatly into the skilled work category on the robot curve and properly does not perform the creative work which is reserved for inventors.

[109] However, I find that Dr. Dayan's evidence that the Skilled Person simply compiles data and leaves it to the inventor to determine what is significant, if anything, about any of the data resulting from the experiments improperly reduces the level of "skill" of the Skilled Person. As noted above, while the Skilled Person is not inventive or imaginative, they are not stripped of the ability to pursue reasonable and logical inquiries, which suggests an ability to appreciate the potential significance of resulting data and how to make use of that data. Moreover, contrary to the suggestion of Dr. Dayan, the Skilled Person would be motivated to understand the 021 Patent and the 486 Patent.

[110] Accordingly, I find that Dr. Dayan erred in relation to certain attributes of the Skilled Person. However, these errors are insufficient to undermine Dr. Dayan's evidence in its entirety (as urged by the Defendants) and do not impact his evidence regarding the remaining attributes of the Skilled Person. As addressed more fully below, given that the technical experts have no meaningful disagreements regarding the construction of the 021 Patent, the potential impact of any of Dr. Dayan's errors is limited to the issues of the determination of the CGK and the Skilled Person's reading of the prior art and as such, they will go to the weight to be given to his evidence in relation to those issues.

[111] Second, the Defendants assert that Dr. Dayan improperly "laid in the weeds" and failed to address by way of a supplementary report or in direct examination Dr. Blackshaw's definition of what constitutes a person working on developing new selective herbicide products (Dr. Dayan's Skilled Person), only addressing it for the first time on cross-examination (as detailed in the

exchange above). The Defendants assert that this tactic by an expert witness is inimical to his overriding duty to the Court. I reject this assertion.

[112] In his expert reports, Dr. Dayan opined that the Skilled Person is someone working on developing new selective herbicide products, in industry, government or academia. He provided no additional precision as to the exact type of work that they would do and I find that it can include a broad range of tasks across various organizations. In his second report, Dr. Blackshaw opined that a person working on developing new herbicide products would be a research scientist engaged in developing new active compounds for use as herbicides or a formulation scientist engaged in developing a formulation for a new compound or an improved formulation for an existing active compound. Dr. Dayan did not respond to Dr. Blackshaw's definition by way of further expert report and I would note that the timetable for the proceeding did not grant the Plaintiffs a further right of reply absent agreement of the parties or leave of the Court. Moreover, Dr. Dayan did not address Dr. Blackshaw's definition in direct examination. It was on cross-examination (as detailed above) that Dr. Dayan stated that his Skilled Person would be conducting testing of compounds for herbicidal activity.

[113] Contrary to the Defendants' assertion, I do not take Dr. Dayan's evidence as a rejection of Dr. Blackshaw's definition of what constitutes a person working on developing new selective herbicides nor as a last minute change to his Skilled Person. In his expert reports, Dr. Dayan did not define the exact type of work being undertaken by a person working on developing new selective herbicides. I see no reason to conclude that his Skilled Person, working in government, industry or academia, could not encompass someone undertaking greenhouse and field testing of

compounds for herbicidal activities or involved in more chemistry-focused activities, such as those suggested by Dr. Blackshaw, all of which are activities requiring familiarity with the evaluation of herbicidal compounds and the crop tolerance of compounds. I note that the Defendants never asked Dr. Dayan on cross-examination whether he accepted or rejected Dr. Blackshaw's definition nor did they ask for any other specifics as to how Dr. Dayan would define a person working on developing new selective herbicides.

[114] In the circumstances, I am not satisfied that the Defendants have demonstrated that Dr. Dayan acted in any way contrary to his duty to the Court.

X. Defining the Common General Knowledge

A. General Principles

[115] The second issue the Court must decide is how to define the CGK of the Skilled Person. CGK refers to knowledge generally known by the Skilled Person at the relevant time [see *Sanofi-Synthelabo, supra* at para 37]. It includes what the Skilled Person may reasonably be expected to know and to be able to find out [see *Novopharm Limited v Janssen-Ortho Inc*, 2007 FCA 217 at para 25(3)].

[116] Unlike the prior art, which is a broad category encompassing all previously disclosed information in the field, a piece of information only migrates into the CGK if a Skilled Person would become aware of it and accept it as "a good basis for further action" [see *Mylan*

Pharmaceuticals ULC v Eli Lilly Canada Inc., 2016 FCA 119 at para 24, citing *General Tire & Rubber Co v Firestone Tyre & Rubber Co*, [1972] RPC 457 (CA), at page 483]. As such, the CGK does not include all of the information in the public domain [see *Gemak v Jempak Corporation*, 2022 FCA 141 at para 95].

B. Analysis

[117] In this case, the relevant date for assessment of the CGK is when the 021 Patent was laid open for public inspection – namely, April 13, 2000. The parties' technical experts provided their opinions regarding the CGK as of April of 2000 and the parties submitted a joint agreement on aspects of the CGK as of 1998. During their closing arguments, the parties confirmed that there was no material difference in the CGK between 1998 and April of 2000.

[118] There was substantial agreement between the parties about the CGK. In advance of trial, the parties provided the Court with a joint submission detailing areas of agreement on the CGK and in their oral closing arguments, the parties confirmed their further areas of agreement regarding the CGK based on the CGK as outlined in the written closing submissions of each party. Having taken those into account and having considered the views of the technical experts in each of their first and second reports (with the second reports identifying any areas of dispute regarding the CGK), I find that the CGK of the Skilled Person would encompass the following key concepts as of April of 2000:

A. Flowering plants, including weed plants and crop plants, can be usefully categorized as either grassy or broadleaf. Grassy plants are typically categorized as monocotyledon plants or monocots. Broadleaf plants are typically categorized as dicotyledon plants or dicots.

B. Wild oats (also known as wild oat or *Avena fatua*) and wheat have similar physiology, as they are both classified as grassy plants from the same family (*Poaceae*).

C. Growers of agricultural crops, including wheat, need to control weeds. Weeds are unwanted plants that can reduce crop yields by competing for light, moisture and nutrients. On an annual basis, Canadian farmers treat millions of acres of wheat with herbicides to combat weeds.

D. Wild oats is a particularly problematic weed in crops of wheat (including spring sown wheat).

E. Herbicides are chemicals that kill or severely reduce the growth of a plant species and have been used to control weeds in crops for decades.

F. Herbicides can be applied before the crop is planted (pre-plant), after the crop is planted but before it emerges (pre-emergence) and after the crop has emerged (post-emergence). Post-emergence applications are the most common type of herbicide application in agricultural crops in Canada.

G. Herbicide formulations are a combination of one or more active ingredients and inactive or inert ingredients. Water dispersible powder (WP) and granule (WG) formulations of herbicides are common formulation types used in the early evaluation of potential herbicides. WP and WG formulations, which commonly contain 50-80% by weight of the active ingredient (the herbidically active compound), are sold commercially in Canada.

H. An herbicide can either control or suppress a particular weed. According to a 1993 Regulatory Directive issued by Agriculture and Agri-Foods Canada, "control" generally denotes 80% or greater reduction in weed stand and/or growth compared to untreated weeds. "Suppression" generally denotes a 60-80% reduction in weed stand and/or growth compared to untreated weeds.

I. Selective herbicides are compounds that can kill or reduce the growth of unwanted plants (i.e. weeds) with minimal to no injury to the wanted plants (i.e. crops). Generally speaking, the typical way that conventional selective herbicides work is that once the herbicidally active ingredient is taken up/adsorbed by the plant and its cells, the active ingredient begins to inhibit a biological process or processes within the cells of the plant. At the same time, the cells will be metabolizing or processing the active ingredient and seeking to expel it from the cell. The active ingredient may affect the same biological process in both weeds and crop plants, but is selective because the crop plants may be able to metabolize the active ingredient fast enough not to be affected by the herbicide, whereas the weeds are not able to metabolize the herbicide fast enough and die.

J. The effect of a selective herbicide is dose dependent. At too high a dose, the crop may not be able to metabolize the active ingredient fast enough and can be injured. At too low a dose, some of the targeted weeds will survive the treatment. The effect of selective herbicides can also be influenced by other factors, such as the stage of growth of the crop and the weeds.

K. Not all herbicidal compounds will work as selective herbicides. A non-selective herbicide means that the herbicide will control all treated vegetation, which is often desirable in industrial areas, railway lines and utility rights of way.

L. Small changes in an herbicidally active molecule can have large effects on the biological behaviour of the compound.

M. It cannot be assumed that all plant species or variety of a species respond similarly to a given herbicide. An herbicide that controls one weed in a crop may only suppress another weed or have minimal or no effect on another weed. As such, to discover compounds that work as selective herbicides, skilled people need to do empirical testing, with candidate compounds tested in greenhouses and typically then in fields to measure how effective they are at killing weeds without harming crops. These tests are replicated experiments that include an untreated control along with the potential herbicide. A standard set of crops would be used in the testing and the candidate herbicide is applied at various rates and application timings. An industry standard herbicide may be included in the tests for comparison purposes. Weed control and crop tolerance is determined by visual assessment.

N. The herbicidal development process takes many years, is very costly and results in few new active ingredients becoming available to growers each year.

O. To be sold as a selective herbicide in Canada, an active ingredient or “technical” grade compound must be approved by the PMRA. The PMRA also approves the end-use label for the product that is sold in Canada, which describes the product and how it is to be used.

P. As new selective herbicides come to market, weed science organizations classify herbicides into groups according to the natural biological processes that they are understood to inhibit or interfere with (i.e. their mode of action). These weed science organizations include the Herbicide Resistance Action Committee [HRAC].

Q. If a grower uses an herbicide from the same group over and over again, weeds tend to develop resistance to that herbicide. As such, it is important for growers to rotate their use of herbicides and select herbicides from different groups in order to reduce the chance of resistance.

[119] Other potential key aspects of the CGK were contested. Dr. Dayan opined that the following additional information formed part of the CGK:

A. At the relevant time, the commonly used selective herbicides for controlling wild oats in wheat were classified by the weed science organizations as Group 1 herbicides and what was then known as Group 8 herbicides (now known as Group 15).

B. The first class of Group 2 herbicides to be commercialized in the 1980s belong to a group called sulfonylureas. The name is an organic chemistry term that refers to the presence of a ‘sulfonyl’ group attached to a ‘urea’ group.

C. At the relevant time, Group 2 herbicides were not generally known for the control of grassy weeds. Rather, they were known for controlling broadleaf weeds and demonstrating little activity on grassy weeds.

[120] In their oral closing arguments, the Defendants asserted that weed groups were only adopted in 1997 and while some people like Dr. Dayan and Dr. Blackshaw were aware of the groups, this information did not form part of the CGK at the relevant time. I reject that assertion, as it is entirely unsupported by the evidence. To the contrary, Dr. Blackshaw expressly addressed in his second expert report Dr. Dayan’s characterization of the CGK as set out in paragraphs 18-59 of Dr. Dayan’s first report (which included the contested CGK set out above). Dr. Blackshaw stated that he was generally in agreement with the statements made by Dr. Dayan but had four areas of comment in which he voiced specific disagreements. No disagreement was voiced regarding Dr. Dayan’s evidence regarding weed groups and what was known about Group 2 weeds at the relevant time.

[121] Accordingly, based on the evidence of Dr. Dayan and Dr. Blackshaw, I am satisfied that the additional information set out above also formed part of the CGK at the relevant time. I find that the errors made by Dr. Dayan in articulating the attributes of the Skilled Person have no bearing on this determination.

XI. Claims Construction

A. General Principles

[122] The applicable principles of claim construction were summarized by the Federal Court of Appeal in *Tearlab Corporation v I-MED Pharma Inc.*, 2019 FCA 179 as follows:

> [30] The general principles of claim construction are now well established and were set out by the Supreme Court in three cases (*Whirlpool* at paras. 49-55; *Free World Trust v. Électro Santé Inc.*, 2000 SCC 66, [2000] 2 S.C.R. 1024 at paras. 31-67 [*Free World Trust*]; *Consolboard Inc. v. MacMillan Bloedel (Sask.) Ltd.*, 1981 CanLII 15 (SCC), [1981] 1 S.C.R. 504 at p. 520 [*Consolboard*]). These principles can be summarized as follows.
>
> [31] The *Patent Act* promotes adherence to the language of the claims, which in turn promotes fairness and predictability (*Free World Trust* at paras. 31(a), (b) and 41). The words of the claims must, however, be read in an informed and purposive way (at para. 31(c)), with a mind willing to understand (at para. 44). On a purposive construction, it will be apparent that some elements of the claimed invention are essential while others are non-essential (at para. 31(e)). The interpretative task of the court, in claim construction, is to separate and distinguish between the essential and the non-essential elements, and to give the legal protection to which the holder of a valid patent is entitled only to the essential elements (at para. 15).
>
> [32] To identify these elements, the claim language must be read through the eyes of a POSITA, in light of the latter's common general knowledge (*Free World Trust* at paras. 44-45; see also *Frac Shack* at para. 60; *Whirlpool* at para. 53). As noted in *Free World Trust*:
>
> > [51] …The words chosen by the inventor will be read in the sense the inventor is presumed to have intended, and in a way that is sympathetic to accomplishment of the inventor's purpose expressed or implicit in the text of the claims. However, if the inventor has misspoken or otherwise created an unnecessary or troublesome limitation in the claims, it is a self-inflicted wound. The public is entitled to rely on the

> words used *provided* the words used are interpreted fairly and knowledgeably. [Emphasis in the original.]
>
> [33] Claim construction requires that the disclosure and the claims be looked at as a whole "to ascertain the nature of the invention and methods of its performance, … being neither benevolent nor harsh, but rather seeking a construction which is reasonable and fair to both patentee and public" (*Consolboard* at p. 520; see also *Teva Canada Ltd. v. Pfizer Canada Inc*., 2012 SCC 60, [2012] 3 S.C.R. 625 at para. 50). Consideration can thus be given to the patent specifications to understand what was meant by the words in the claims. One must be wary, however, not to use these so as "to enlarge or contract the scope of the claim as written and … understood" (*Whirlpool* at para. 52; see also *Free World Trust* at para. 32). The Supreme Court recently emphasized that the focus of the validity analysis will be on the claims; specifications will be relevant where there is ambiguity in the claims (*AstraZeneca Canada Inc. v. Apotex Inc*., 2017 SCC 36, [2017] 1 S.C.R. 943 at para. 31; see also *Ciba* at paras. 74-75).
>
> [34] Finally, it is important to stress that claim construction must be the same for the purpose of validity and for the purpose of infringement (*Whirlpool* at para. 49(b)).

B. Analysis

[123] The relevant date for construing the claims of the 021 Patent is the publication date – namely, April 13, 2000.

[124] Claim elements are presumed to be essential and the patentee bears the onus of proving that any claim elements are non-essential. In this case, the Plaintiffs have not asserted that any claim element of any of the Asserted Claims is non-essential and there was no expert evidence opining that any claim element was non-essential. As such, I have not performed any essentiality analysis.

[125] The technical experts were largely in agreement as to the meaning of the terms and phrases used in the Asserted Claims of the 021 Patent. There were only two areas of disagreement, which I will address below. That said, I find that these areas of disagreement are more "academic" than anything, as they have no material impact on any of the issues to be determined by the Court. The parties did not dispute this characterization, which I referenced at the oral closing arguments.

[126] In construing the Asserted Claims of the 021 Patent, there is the need to make repeated reference to the compound of the formula (I). As at the relevant date, the compound of the formula (I) had not yet been given the name flucarbazone. For ease of reference, however, I will refer to it as flucarbazone or where the sodium salt of the compound is referenced, as flucarbazone sodium.

[127] Claim 1 is directed at a selective-herbicidal composition, comprising an effective amount of flucarbazone sodium formulated as 70 WP or 70 WG, 70% w/w water dispersible powder or granules, preparation. The technical experts disagreed as to the meaning of "selective", with Dr. Dayan opining that it means that the active ingredient is more toxic to particular weeds than particular useful crops and Dr. Blackshaw opining that it means 80% or greater reduction in weed stand or growth compared to untreated weeds, with little to no injury (less than 10%) to cereals. Dr. Dayan did not disagree that an 80% threshold for the control of weeds and a 10% threshold for crop injury were useful benchmarks known to the Skilled Person, but noted that these benchmarks are based on a regulatory directive, which is a different type of document than a patent.

[128] None of the issues for determination by the Court turn on whether the selectivity thresholds are set at 80% and 10% or simply expressed using the words "more" toxic. Moreover, I note that

the data included in the Examples contained in the 021 Patent demonstrates that flucarbazone sodium met both selectivity thresholds of 80% and 10% for wild oats in crops of wheat, whereas (to the extent the data is available) the comparator compounds did not meet both or did not meet the 80% threshold for wild oats.

[129] Claim 3, as it depends on claim 2, is directed at the use of flucarbazone sodium for the selective control of weeds in crops of wheat.

[130] Claim 6, as it depends on claim 5, is directed at a method for the selective control of at least one weed selected from *Agropyron*, *Avena*, *Brassica*, *Capsella*, *Lolium*, *Sinapsis*, *Thlapsi*, *Veronica* and combinations thereof, in spring-sown wheat, comprising adding flucarbazone sodium to the crop, the crop environment or both.

[131] Claim 7, as it depends on claim 6, is directed at a method for the selective control of at least one weed selected from *Agropyron*, *Avena*, *Lolium* and *Veronica*, in spring-sown wheat, comprising adding flucarbazone sodium to the crop, the crop environment or both.

[132] Claim 8, as it depends on claim 6, is directed at a method for the selective control of *Avena* in spring-sown wheat comprising adding flucarbazone sodium to the crop, the crop environment or both.

[133] Claim 9, as it depends on claim 8, is directed at a method for the selective control of *Avena* in spring-sown wheat comprising adding flucarbazone sodium to the crop, the crop environment or both, at an application rate of 30 to 60 g/ha.

[134] Claim 10, as it depends on claim 9, is directed at a method for the selective control of *Avena* in spring-sown wheat comprising adding flucarbazone sodium to the crop, the crop environment or both, at an application rate of 30 to 60 g/ha, wherein the flucarbazone sodium is applied as 70 WP or 70 WG formulation.

[135] The technical experts disagreed as to the construction of "is applied as 70 WP or WG formulation". Dr. Dayan opined that the Skilled Person would understand that claim 10 means that the application rate of 30 to 60 g/ha of active ingredient is applied by way of a formulation in which the active ingredient is formulated into a 70% by weight water dispersible powder or granule and then applied with customary amounts of water. Dr. Blackshaw opined that, as written, claim 10 is limited to the application of the powder or granules and excludes the application of the powder or granules in a tank mix with other ingredients, such as surfactants or an extender.

[136] The Defendants assert that Dr. Dayan's construction improperly results in a different meaning to the phrase "is applied" in claim 10 than in claim 9, because for claim 9, Dr. Dayan agreed on cross-examination that "is applied" means to put on the field, whereas his construction of "is applied" in claim 10 would mean to put in a tank and mix it with water.

[137] I agree with the Plaintiffs that Dr. Blackshaw's construction focuses solely on the wording of claim 10 and fails to consider the language of claim 10 through the eyes of Skilled Person, in light of the Skilled Person's CGK. Dr. Blackshaw provided no opinion as to how the Skilled Person would understand claim 10 and in his responding expert report, he did not take issue with Dr. Dayan's opinion on claim 10. I accept Dr. Dayan's evidence that the Skilled Person's reading of claim 10 would be informed by their understanding that herbicides with a 70 WP or 70 WG formulation are typically applied by mixing the powder or granules with other ingredients in a tank. I find that the errors made by Dr. Dayan in articulating the attributes of the Skilled Person have no bearing on this determination.

[138] That said, in relation to the issues remaining for the Court's determination, nothing turns on the construction of this portion of claim 10.

XII. Validity of the 021 Patent

[139] Each of the Defendants and the Plaintiffs have advanced a general characterization of the 021 Patent that drive the parties' respective positions on the issues of obviousness and anticipation, which were the principal grounds of invalidity advanced at trial.

[140] The Defendants assert that the 021 Patent is invalid on the basis that the patent is nothing more than "mere verification" of the properties of a known compound. The Defendants state that the inventors of the 021 Patent took a known compound (flucarbazone sodium) from their own prior patent (the 486 Patent), tested it for the use described in the 486 Patent (use as an herbicide)

using greenhouse tests described in the 486 Patent and routine field tests to verify that flucarbazone sodium can be used as an herbicide and in particular, a selective herbicide. The Defendants assert that there was no new product, no new result and no new process in the 021 Patent. Rather, the inventors simply confirmed the predicted herbicidal and selective-herbicidal qualities of flucarbazone sodium, which does not constitute an invention.

[141] The Defendants acknowledge that "verification" is not a standalone ground of invalidity and that in the case law upon which the Defendants rely, the Courts have addressed the concept of verification in the context of addressing allegations of anticipation and obviousness, often in the context of selection patents (although all parties confirmed in their closing arguments that they are not asserting that the 021 Patent is a selection patent).

[142] The Plaintiffs reject the Defendants' "mere verification" argument, instead arguing, based on *Shell Oil Co v Canada (Patents)*, [1982] 2 SCR 536, that the 021 Patent embodies a new use for a known compound - specifically, the use of flucarbazone sodium for the control of wild oats and other grassy and broadleaf weeds in crops of wheat, which was an unknown or unsuspected selective-herbicidal property of flucarbazone sodium.

A. Obviousness

(1) General Principles

[143] Inventions are required to be, as the term implies, inventive [see *Angelcare Canada Inc v Munchkin Inc*, 2022 FC 507 at para 359]. A patent is not valid if it is not inventive or if the invention it claims would have been obvious to the Skilled Person on the claim date. The test for obviousness is set out in section 28.3 of the *Patent Act*, which provides:

The subject-matter defined by a claim in an application for a patent in Canada must be subject-matter that would not have been obvious on the claim date to a person skilled in the art or science to which it pertains, having regard to	L'objet que définit la revendication d'une demande de brevet ne doit pas, à la date de la revendication, être évident pour une personne versée dans l'art ou la science dont relève l'objet, eu égard à toute communication :
(a) information disclosed before the one-year period immediately preceding the filing date or, if the claim date is before that period, before the claim date by the applicant, or by a person who obtained knowledge, directly or indirectly, from the applicant in such a manner that the information became available to the public in Canada or elsewhere; and	a) qui a été faite, soit plus d'un an avant la date de dépôt de la demande, soit, si la date de la revendication est antérieure au début de cet an, avant la date de la revendication, par le demandeur ou un tiers ayant obtenu de lui l'information à cet égard de façon directe ou autrement, de manière telle qu'elle est devenue accessible au public au Canada ou ailleurs;
(b) information disclosed before the claim date by a person not mentioned in paragraph (a) in such a manner that the information became available to the public in Canada or elsewhere.	b) qui a été faite par toute autre personne avant la date de la revendication de manière telle qu'elle est devenue accessible au public au Canada ou ailleurs.

[144] Obviousness is assessed on a claim-by-claim basis [see *Zero Spill Systems (Int'l) Inc v Heide*, 2015 FCA 115 at para 85]. Each claim is evaluated against the four part obviousness framework restated by the Supreme Court of Canada in *Sanofi-Synthelabo*, *supra* at para 67. To determine whether a given patent claim was obvious as of the relevant date, one must:

1. (a) Identify the notional "person skilled in the art"; and

   (b) Identify the relevant common general knowledge of that person;

2. Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

3. Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed; and

4. Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

[145] In effect, the *Sanofi-Synthelabo* test asks whether the Skilled Person at the relevant claim date could have "bridged the gap" between the state of the art and the inventive concept using only their common general knowledge [see *Angelcare, supra* at para 362 citing *Bristol-Myers Squibb Canada Co v Teva Canada Limited*, 2017 FCA 76 at para 65].

[146] Obviousness is a difficult test to satisfy because it necessitates showing that the Skilled Person would have come directly and without difficulty to the invention, without the benefit of hindsight [see *Bridgeview Manufacturing Inc v 931409 Alberta Ltd (Central Alberta Hay*

Centre), 2010 FCA 188 at para 50; *Beloit Canada Ltd v Valmet Oy*, (1986) 8 CPR (3d) 289 (FCA) at 294].

[147] That said, the *Sanofi-Synthelabo* test must be applied with flexibility and the importance given to any factor depends on the particular facts of the case. A determination of whether an invention is obvious to a Skilled Person is based on a multifactorial balancing [see *Biogen Canada Inc v Pharmascience Inc*, 2022 FCA 143 at para 143].

[148] With respect to stage 1 of the test, the qualities and capabilities of the Skilled Person for the purpose of assessing obviousness are the same as those for the purpose of construing the patent [see *Mediatube Corp v Bell Canada*, 2017 FC 6 at para 123 ("Mediatube II")].

[149] With respect to stage 2 of the test, the Court is to "identify the inventive concept of the claim in question or if that cannot readily be done, construe it." On occasion, the inventive concept may be "readily apparent" where there is agreement on it. If not, the inventive concept needs to be construed [see *Apotex Inc v Shire LLC*, 2021 FCA 52, at para 67]. To do that, the Court is to first determine whether it can be identified from the previously completed claims construction exercise. Second, where it is not possible to grasp the nature of the inventive concept solely from those claims, the Court may have regard to the patent specification to determine if it provides any insight or clarification into the inventive concept of the claim(s) in issue [see *Sanofi-Synthelabo*, *supra* at para 77]. If this step is necessary, "it is not permissible to read the specification in order to construe the [inventive concept of the] claims more narrowly or widely than the text will allow" [see *Sanofi-Synthelabo*, *supra* at para 77]. While an inventive concept is an attribute of the claims, it differs

from claims construction. As such, though the process for the identification of an inventive concept bears a striking resemblance to that of claims construction, it is nonetheless a distinct, separate exercise [see *Apotex Inc v Shire LLC, supra* at para 68]. It is the inventive concept(s) of the claim(s) in issue that must be the focus of an obviousness inquiry, not the inventive concept of the patent [see *Apotex Inc v Shire LLC, supra* at para 69].

[150] Stage 3 of the obviousness analysis involves comparing the inventive concept of the claim to the state of the art to determine whether, or to what extent, an equivalent or similar solution to the problem being addressed was known at the claim date. The matter cited as forming part of the prior art is simply the prior art relied upon by the person alleging obviousness, rather than the prior art at large [see *Ciba Specialty Chemicals Water Treatment Limited's v SNF Inc*, 2017 FCA 225 at para 60]. In this case, the prior art at issue is the 486 Patent and 636 Patent.

[151] Stage 4 of the obviousness inquiry asks whether the differences, in light of the prior art and viewed without any knowledge of the alleged invention as claimed, constitute steps which would have been obvious to the skilled person, or if they instead required any degree of invention [see *Sanofi-Synthelabo, supra* at paras 67, 70]. Obviousness is assessed objectively and purposively, having regard to the problem addressed by the patent [see *Rovi Guides, Inc v Videotron Ltd*, 2022 FC 874 at para 312].

[152] In areas of invention where advances are often achieved by experimentation, an "obvious to try" test might be appropriate [see *Janssen Inc v Pharmascience Inc*, 2022 FC 1218 at para 120 citing to *Sanofi-Synthelabo, supra* at para 68]. In *Sanofi-Synthelabo*, the Supreme Court of Canada

provided a non-exhaustive list of factors to consider in determining whether the invention was "obvious to try":

> [69] If an "obvious to try" test is warranted, the following factors should be taken into consideration at the fourth step of the obviousness inquiry. As with anticipation, this list is not exhaustive. The factors will apply in accordance with the evidence in each case.
>
> > 1. Is it more or less self-evident that what is being tried ought to work? Are there a finite number of identified predictable solutions known to persons skilled in the art?
> >
> > 2. What is the extent, nature and amount of effort required to achieve the invention? Are routine trials carried out or is the experimentation prolonged and arduous, such that the trials would not be considered routine?
> >
> > 3. Is there a motive provided in the prior art to find the solution the patent addresses?
>
> [70] Another important factor may arise from considering the actual course of conduct which culminated in the making of the invention. It is true that obviousness is largely concerned with how a skilled worker would have acted in the light of the prior art. But this is no reason to exclude evidence of the history of the invention, particularly where the knowledge of those involved in finding the invention is no lower than what would be expected of the skilled person.

[153] For a finding that an invention was "obvious to try", there must be evidence to convince the Court, on a balance of probabilities, that it was more or less self-evident to try to obtain the invention. Mere possibility that something might turn up is not enough [see *Sanofi-Synthelabo, supra* at para 66]. The Court must be cautious, however, when approaching the obvious to try analysis as it remains as only one factor amongst many that may assist in the obviousness inquiry and is not intended to displace other tests [see *Bristol Myers Squibb Canada Co v Teva Canada Limited*, *supra* at para 76; *Apotex Inc v Pfizer Canada Inc*, 2019 FCA 16 at para 32].

[154] In *Janssen-Ortho Inc v Novopharm Limited*, 2006 FC 1234 at para 113, Justice Hughes cautioned about the danger of hindsight in any obviousness analysis:

> It is far too easy to see how the alleged invention could have been arrived at, even easily, once it has been done. As some cases say, simplicity does not negate invention. However, if the number of decisions to be made in arriving at the solution were few, and commonplace, hindsight may merely confirm that no inventive ingenuity was required so as to arrive at the solution. If the points for decision were many and choices abundant, there may be inventiveness in making the proper decisions and choices.

(2) Analysis

[155] The parties agree that the relevant date for assessing obviousness of the 021 Patent is April 13, 2000.

[156] The Skilled Person and the CGK are identified and described above. As such, I will begin my analysis with the second prong of the obviousness inquiry – namely, the inventive concept of the claims of the 021 Patent. There is no dispute between the parties that the inventive concept of the Asserted Claims of the 021 Patent accords with the language of the claims themselves. As such, the inventive concept of the Asserted Claims of the 021 Patent is the use, and methods of use, of flucarbazone and/or flucarbazone sodium as a selective herbicide to control wild oats and other grassy and broadleaf weeds in cereal crops, in particular wheat.

[157] Turning to the third prong of the obviousness inquiry (what, if any differences exist between the matter cited as forming part of the state of the art and the inventive concept of the

Asserted Claims of the 021 Patent), the matter cited as forming part of the state of the art is the 486 Patent and the 636 Patent. While the Defendants have cited both patents, given the similarities between the 486 Patent and the 636 Patent, the parties made no specific submissions in relation to the 636 Patent and focused solely on the 486 Patent. For the purpose of my analysis, I too will focus my analysis on the 486 Patent.

[158] The Defendants assert that if there is any difference between the 486 Patent and the 021 Patent (which they deny), that difference can only be that flucarbazone sodium is not identified as a selective herbicide in the 486 Patent.

[159] In denying this difference, the Defendants assert that the Skilled Person reading the 486 Patent would understand that the compounds disclosed in the 486 Patent, including flucarbazone sodium, can act as selective herbicides.

[160] As will be recalled, Column 28 of the 486 Patent states:

> The active compounds, according to the invention can be used as defoliants, desiccants, agents for destroying broadleaved plants and especially, as weed-killers. By weeds, in the broadest sense, there are to be understood all plants which grow in locations where they are undesired. Whether the substances according to the invention act as total or selective herbicides depends essentially on the amount used.
>
> ….
>
> The compounds are suitable, depending on the concentration, for the total combating of weeds, for example on industrial terrain and rail tracks, and on paths and squares with or without tree plantings. Equally, the compounds can be employed for combating weeds in perennial cultures, for example afforestations, decorative tree

> plantings, orchards, vineyards, citrus groves, nut orchards, banana plantations, coffee plantations, tea plantations, rubber plantations, oil palm plantations, cocoa plantations, soft fruit plantings and hopfields, on lawns, turf and pasture-land, and for the selective combating of weeds in annual cultures.
>
> Some of the compounds of the formula (I) according to the invention are suitable for total or semi-total weed control, some for the selective control of monocotyledon and dicotyledon weeds in monocotyledon and dicotyledon cultures, both pre-emergence and post-emergence.
>
> [Emphasis added]

[161] The difficulty with the Defendants' reading of the 486 Patent is that the language in Column 28 is incongruous. It initially suggests that whether the compounds act as total or selective herbicides depends on the amount used and that all of the compounds can be employed for the selective combatting of weeds in annual cultures. However, it goes on to state that some of the compounds are for the selective control of monocotyledon and dicotyledon weeds in certain cultures. The Defendants assert in their written submissions that the Skilled Person "would, at a minimum, consider that it is likely that all compounds are indeed selective herbicides". However, the Defendants have not cited any evidence in support of this assertion.

[162] Turning to Dr. Blackshaw's evidence on this issue, in his first expert report, Dr. Blackshaw opined in the summary section that the 486 Patent indicates that the compounds described therein (including flucarbazone sodium) can be used as selective herbicides. In the body of his report where he addressed this issue, Dr. Blackshaw recited the aforementioned language from Column 28 and then opined that the Skilled Person would consider that "the selective combatting of weeds in annual cultures" would include selective combatting of weeds in wheat and other cereal crops. Dr. Blackshaw provided no explanation for how the Skilled Person would reconcile the

incongruent language of Column 28 of the 486 Patent and in particular, how the Skilled Person would understand the statement that only "some of the compounds" are suitable for selective weed control. His oral evidence given at trial also did not expressly address this language from Column 28.

[163] To the contrary, Dr. Dayan's evidence was that the Skilled Person would not read the 486 Patent as teaching that flucarbazone or flucarbazone sodium would work as a selective herbicide in crops of wheat or otherwise. Rather, the Skilled Person would understand that whether the compounds of the 486 Patent are useful as selective herbicides will depend on the precise structure of the compounds and the application rate.

[164] In light of the above, I am not satisfied that the Defendants have established that the Skilled Person would understand the 486 Patent as identifying flucarbazone or flucarbazone sodium as a selective herbicide. As a result, I am satisfied that one of the differences between the 486 Patent and the 021 Patent is that flucarbazone and flucarbazone sodium are not identified as a selective herbicide in the 486 Patent.

[165] The Defendants also assert at various places in their closing arguments that there is essentially no difference between a compound being an herbicide and a selective herbicide, such that the 021 Patent discloses no new use of flucarbazone sodium. The Defendants assert that as a result, there is no difference between the 486 Patent and 021 Patent.

[166] I accept that the Skilled Person would read the 486 Patent as teaching that all of the compounds disclosed therein (including flucarbazone and flucarbazone sodium) have herbicidal activity and thus are herbicides. However, I do not accept that disclosing a compound as an herbicide is the same as disclosing it as a selective herbicide.

[167] The Defendants assert in their closing submissions that use of a compound as an herbicide and use of that same compound as a selective herbicide is the same use as in both cases, the compound is killing undesired plants. However, the Defendants do not cite any expert evidence that actually supports this assertion. While the Defendants refer to a portion of Dr. Dayan's cross-examination, Dr. Dayan stated that "in the abstract" both herbicides and selective herbicides kill undesired plants. However, he clarified that an herbicide may also kill a crop in an undesirable manner, whereas a selective herbicide will not kill the crop (or result in minimal crop damage) for which it is approved for use.

[168] This is consistent with Dr. Blackshaw's first report, wherein he stated:

> 14. Herbicides are chemicals that kill or severely reduce the growth of a plant species (see Zimdahl, p.271 and Anderson, p.59). The ability of a herbicide to kill or reduce undesirable vegetation (weed) with minimal or no injury to desirable vegetation (crop) is called selectivity (Anderson, p.108, Zimdahl, p.291). Non-selective control indicates that all treated vegetation is controlled; often desirable in industrial areas, railway lines, and utility right-of-ways. In general, for an herbicide to be considered selective, the crop injury must be less than about 10%. Initial damage up to this amount will generally not result in any loss of yield for the crop. Selectivity is a function of a number of factors, including the rate of application (Zimdahl, p.291). Simply put, if the rate of application of any herbicide is high enough, it will kill the crop as well as any weeds present.

[169] I am satisfied that the evidence establishes that some herbicides demonstrate selective activity, whereas others can only be non-selective (i.e. kill all plants). For those herbicides that are selective, I agree with the Defendants that what makes such herbicides selective is their chemical structure. The evidence before the Court is that millions of dollars are expended by companies annually looking to discover the specific chemical structures of compounds that exhibit selective-herbicidal activity, as it is very important for growers of agricultural crops to control the weeds that would otherwise spread and proliferate among their crop plants, resulting in lower crop yield and lower crop quality.

[170] Moreover, Dr. Dayan's evidence was that the selective-herbicidal properties of a given compound are important, as some weeds are more difficult to control in certain crops (such as where the weed and the crop are from the same *genera*, as is the case with wild oats and wheat).

[171] I find that there is simply no expert evidence before the Court that the Skilled Person would understand that herbicides and selective herbicides are used in the same manner.

[172] As such, I accept that the use of an herbicide as a selective herbicide to target a particular weed in a particular crop is a distinct use.

[173] Turning back to the broader issue of what differences exist between the 486 Patent and the inventive concept of the Asserted Claims of the 021 Patent, I note that the 486 Patent disclosed hundreds of compounds within the SACT class that have oxygen bonded substituents (including the compound now known as flucarbazone sodium) with potential uses as "defoliants, desiccants,

agents for destroying broad-leaved plants and, especially, as weed-killers", stating that the compounds are distinguished by a powerful herbicidal activity and surprisingly better herbicidal activity than another known compound with a similar structure. Flucarbazone sodium was one of eleven compounds that were specifically claimed in the 486 Patent, although the rationale for why flucarbazone sodium was specifically claimed is unknown. In particular, it is noteworthy that the 486 Patent contains no use examples wherein the herbicidal activity of flucarbazone sodium was assessed, nor does it include flucarbazone or flucarbazone sodium on the list of examples that were disclosed as having superior herbicidal activity (with no weeds specified) or in some cases, as having good crop compatibility (with no crop specified).

[174] On the other hand, the 021 Patent discloses that flucarbazone and flucarbazone sodium show considerably stronger selective-herbicidal activity against grassy and broadleaf weeds in cereal crops which are difficult to control (in particular, wild oats), combined with very good compatibility with cereal crops (in particular, wheat) and discloses methods for the use of flucarbazone sodium as a selective herbicide in cereal crops.

[175] Accordingly, I agree with the Plaintiffs and find that the differences between the state of the art and the inventive concept can be summarized as follows:

A. Claim 1 – that flucarbazone sodium works as a selective herbicide in a composition comprising an effective amount of flucarbazone sodium formulated as a 70% wettable powder (WP) or water dispersible granule (WG).

B. Claim 3 (as it depends from claim 2) – that flucarbazone sodium can be used for the selective control of weeds in crops of wheat.

C. Claim 6 (as it depends from claim 5) – that adding flucarbazone sodium to the crop, the crop environment or both is a useful method for the selective control of at least one weed selected from *Agrophyron, Avena, Brassica, Capsella, Lolium, Sinapsis, Thlaspi, Veronica* and combinations thereof, in spring-sown wheat.

D. Claim 7 (as it depends from claim 6) – that adding flucarbazone sodium to the crop, the crop environment or both is a useful method for the selective control of at least one weed selected from *Agropyron*, *Avena*, *Lolium* and *Veronica*, in spring-sown wheat.

E. Claim 8 (as it depends from claim 6) – that adding flucarbazone sodium to the crop, the crop environment or both, is a useful method for the selective control of *Avena* in spring-sown wheat.

F. Claim 9 – that adding flucarbazone sodium to the crop, the crop environment or both, at an application rate of 30 to 60 g/ha, is a useful method for the selective control of the weeds covered by claims 6, 7 or 8 in spring-sown wheat.

G. Claim 10 - that adding flucarbazone sodium to the crop, the crop environment or both, at an application rate of 30 to 60 g/ha, by applying flucarbazone sodium as a 70 WP or 70

> WG formulation, is a useful method for the selective control of the weeds covered by claims 6, 7 or 8 in spring-sown wheat.

[176] I will now turn to consider stage 4 of the obviousness inquiry – to determine, when viewed without any knowledge of the alleged invention as claimed, whether the differences between the invention and the matter cited as forming part of the state of the art constitute steps which would have been obvious to the Skilled Person, or whether they require any degree of invention.

[177] In a matter such as this, where the art in question encompasses advances made as a result of experimentation, stage 4 of the obviousness inquiry is best considered by application of the "obvious to try" test articulated in *Sanofi-Synthelabo*. As such, the Court must consider: (i) whether it is more or less self-evident that what is being tried ought to work? Are there a finite number of identified predictable solutions known to persons skilled in the art? (ii) what is the extent, nature and amount of effort required to achieve the invention? Are routine trials carried out or is the experimentation prolonged and arduous, such that the trials would not be considered routine? (iii) is there a motive provided in the art to find the solution the patent addresses?

[178] The Defendants did not expressly address each of these factors, but instead provided global submissions on the fourth prong of the obviousness inquiry. The Defendants assert that differences between the 486 Patent and the 021 Patent – namely, the identification of flucarbazone sodium as a selective herbicide, including for the control of wild oats in crops of wheat – did not require any invention whatsoever.

[179] The Defendants assert that flucarbazone sodium, its chemical structure and function as an herbicide had been disclosed in the 486 Patent. The 486 Patent also disclosed that, at a minimum, at least some of the compounds listed in the 486 Patent were selective herbicides. The Defendants assert that the Skilled Person would have to engage in nothing more than routine, skilled work to verify that flucarbazone sodium was a selective herbicide that could control wild oats in crops of wheat. As flucarbazone sodium was one of eleven of the 327 compounds specifically claimed and called out for "special attention" in the 486 Patent, flucarbazone would be an obvious starting point for testing for selective-herbicidal activity. From there, the inventors would only have needed to use well-known and routine test for herbicidal activity by way of greenhouse testing and then field testing, on standard sets of commercially important crops (including wheat) for the most problematic weeds in those crops (which would include wild oats in the case of wheat). The Defendants note that Dr. Dayan admitted that testing of this nature was the standard mode of operation for companies looking to identify a new selective herbicide. The Defendants further note that the Plaintiffs produced no documentation from Bayer as to the work completed by the inventors to arrive at the invention, such that there is no evidence that they encountered any difficulty in conducting these routine tests to arrive at the 021 Patent.

[180] Before turning to a consideration of the various factors, it is important to recall the important role played by expert evidence in the determination of an obviousness allegation. Expert evidence is inevitably required to provide the necessary foundation for the assessment of obviousness, as no judge can be expected to have the kind of knowledge necessary to put him or her in the position of a Skilled Person as of the relevant time without suitable instruction from credible experts [see *Allergan Inc v Canada (Health)*, 2012 FC 767 at para 129; Donald H.

MacOrdum, *Fox on the Canadian Law of Patents Fifth Edition* (Toronto: Thomson Reuter Canada Limited, 2022) at §4:32]. The experts are to opine on what the Skilled Person would know or do in light of the state of the art at the relevant time and must provide supporting analysis or reasons for their opinion [see *Janssen Inc v Pharmascience Inc*, *supra* at para 147].

[181] For a finding that an invention was "obvious to try", there must be evidence to convince a judge on a balance of probabilities that it was more or less self-evident to try to obtain the invention [see *Sanofi-Synthelabo*, *supra* at para 66]. As will be addressed more fully below, the difficulty that I have with the Defendants' position is that it lacks supporting expert evidence. Dr. Blackshaw was asked to opine on very specific questions/issues, which did not include addressing key aspects of stage 4 of the obviousness inquiry. Dr. Blackshaw provided no opinion on whether the differences between the 486 Patent and the 021 Patent constitute steps which would have been obvious to the Skilled Person. No other technical expert evidence was led by the Defendants, nor was the necessary evidence to support their obviousness assertions obtained by way of admissions from Dr. Dayan. To the contrary, Dr. Dayan refuted many of the assertions advanced by the Defendants.

[182] In considering the question of whether the 021 Patent was obvious to the Skilled Person, it is important to consider what the 486 Patent included and importantly, did not include. The 486 Patent contained no specific data about any of the compounds. No specific test results were included. For the tests that were conducted, the 486 Patent does not disclose which weeds were tested or which crops were tested, nor was flucarbazone or flucarbazone sodium included among the compounds that were tested. The 486 Patent taught about a wide range of possible uses for the

compounds at issue, including as defoliants, desiccants and herbicides and was not focused on the selective-herbicidal use of any specific compound.

[183] In relation to the absence of data in the 486 Patent, the Defendants criticized Dr. Dayan's evidence regarding the Skilled Person's reading of the 486 Patent, asserting that his Skilled Person did not read the 486 Patent with a mind willing to understand but rather was improperly focused on the absence of data to underpin the claims of the 486 Patent. The Defendants point to the following evidence from Dr. Dayan given on cross-examination:

> Q. Right. So -- so those compounds, the new SATCs, as the paragraph said, are distinguished by a powerful herbicidal activity. The -- the skilled person would understand that; correct?
>
> A. Yes, I understand that. Yes.
>
> Q. And the skilled person would understand that the inventors here are saying that all the compounds of Formula 1 of the '486 patent have this powerful herbicidal activity?
>
> A. Well, I mean, the reader of the patent, while reading this section, would also look at the evidence provided in the patent. And it says that some examples of these have some herbicidal activity against some unknown weed again and compatible with, you know, some unknown crop.
>
> So it -- it suggests that there is some activity, but it doesn't lead the person to know exactly, you know, what activity they're talking about.
>
> Q. And -- and that's what you're looking for in reading the '486; you're looking for disclosure of specific data; is that correct?
>
> A. Well, ideally, yes, the -- the skilled person would be looking for evidence supporting that statement.
>
> Q. All right. And that's how you read the '486; you looked at it to see whether there was actual evidence in it to support the statements?
>
> A. Yes.

[184] The Defendants assert that the Skilled Person is not to read the 486 Patent looking for data and rely on the decision of Justice Pallotta in *Janssen Inc v Sandoz Canada Inc*, *supra* at para 152, where she stated that she agreed "with Sandoz that the plaintiffs' experts were sometimes overly critical of teachings in the prior art that were not backed up by controlled clinical trials".

[185] As I have stated above, I agree with the Defendants that Dr. Dayan erred in his description of certain attributes of the Skilled Person and that the Skilled Person must read the 486 Patent with a mind willing to understand what the authors of the 486 Patent meant. However, I do not accept that this necessarily undermines the weight to be given to Dr. Dayan's evidence regarding his concern about the absence of data in the 486 Patent.

[186] In that regard, I note that the Defendants did not take the Court to the subsequent paragraph of Justice Pallotta's decision where she stated (at paragraph 153) that the "skilled person would evaluate and take into account the quality of the evidence". As such, I find that while the Skilled Person was required to read the 486 Patent with a mind willing to understand, it is not improper for the Skilled Person to evaluate the statements made in the 486 Patent and to consider whether there was any data to support the claimed uses and attributes of the compounds. In that regard, I would also note that even Dr. Blackshaw noted in his first report the absence of data in the 486 Patent, stating "the 486 Patent does not indicate that flucarbazone sodium was tested and does not provide any data on the compounds that were tested." Dr. Blackshaw also noted that the 486 Patent did not provide "any description of any field testing of any of the compounds."

[187] Turning now to the "obvious to try" factors, as many of the factors identified in *Sanofi-Synthelabo* are interrelated [see *Tensar Technologies Limited et al v Enviro-Pro Geosynthetics Ltd*, 2019 FC 277 at para 159, aff'd 2021 FCA 3] and as the Defendants did not address them individually, I will deal with them collectively.

[188] I find that at the relevant time (April of 2000), little was known about flucarbazone sodium. The compound and its chemical structure had been disclosed in the 486 Patent, together with over 300 other SATC compounds. The group of compounds were stated as having powerful herbicidal activity and could be used as defoliants, dessicants, agents for destroying broadleaved plants and as weed killers, with broad potential use for numerous plants and weeds. Flucarbazone sodium was not specifically identified in the 486 Patent for use as a selective herbicide, although the 486 Patent identified that some of the 327 compounds could be used as selective herbicides.

[189] In order to bridge the gap between the 486 Patent and the 021 Patent, was it more or less self evident to the Skilled Person that flucarbazone sodium ought to work as a selective herbicide for the control of wild oats and other grassy and broadleaf weeds in crops of cereal and in particular, in crops of wheat? Why choose flucarbazone sodium from amongst the group of 327 compounds disclosed in the 486 Patent?

[190] I accept that flucarbazone sodium was one of eleven compounds claimed in a claim to a single compound and that Dr. Dayan admitted that flucarbazone sodium was singled out by the inventors for "special attention". That theoretically may have the effect of narrowing the starting point from 327 compounds to eleven. However, the 486 Patent provides no insight as to why any

of the eleven compounds were singled out, particularly given that, in the case of flucarbazone sodium, it was not one of the compounds that was tested in the use examples and there is no data or information specific to flucarbazone sodium for any of the various claimed uses of the compounds in Column 28 of the 486 Patent.

[191] Moreover and importantly, there is no expert evidence before the Court that the Skilled Person would understand that the fact that flucarbazone sodium was separately claimed meant that it was one of the referenced compounds that could be used as a selective herbicide. Dr. Blackshaw offers no opinion as to why the Skilled Person would select flucarbazone sodium or how easily the Skilled Person would arrive at that selection.

[192] I find that nothing in the 486 Patent points directly or indirectly to flucarbazone sodium as being a preferred compound of the eleven compounds, yet alone the 327 compounds. Without hindsight, there is no justification for the Skilled Person to pick flucarbazone sodium out of the 327 compounds for further testing as a selective herbicide to control certain grassy and broadleaf weeds in crops of wheat.

[193] I find that the CGK would actually have steered the Skilled Person away from selecting flucarbazone sodium as the chosen compound. At the relevant time, sulfonylurea herbicides were not generally known for the control of grassy weeds. Rather, they were known for controlling broadleaf weeds and demonstrating little activity on grassy weeds. The chemical structure of flucarbazone sodium and the other SATCs disclosed in the 486 Patent confirms that the compounds contain sulphonyl and urea groups, like the then existing sulfonylurea herbicides.

[194] Dr. Dayan opined that the flucarbazone sodium discovery in the 021 Patent would not have been expected by the Skilled Person given the chemical structure of the compound, which structure was not generally known for grassy weed control in cereal crops. If any selective-herbicidal activity were to be predicted, it would therefore have been most likely for broadleaf weeds, not grassy weeds. Dr. Blackshaw did not dispute this evidence and I find that the above-referenced errors made by Dr. Dayan do not detract from the weight to be given to his evidence on this issue.

[195] As such, I find that neither the 486 Patent nor the CGK would have motivated the Skilled Person to select flucarbazone sodium as the candidate compound before any of the other compounds disclosed in the 486 Patent, nor would they have provided the basis for the Skilled Person to think that it was more or less self-evident that flucarbazone sodium would work as a method for the selective control of wild oats and other grassy and broadleaf weeds in crops of wheat.

[196] Turning to the testing conducted to achieve the 021 invention, the Defendants have presented very limited expert evidence regarding the effort required to achieve the invention of the 021 Patent. Dr. Blackshaw opined solely on the nature of the effort, but not the amount and duration of the effort. In his first report, Dr. Blackshaw only addressed the differences between the testing methodologies described in the 486 Patent and the 021 Patent and then opined at paragraph 74 that, while the 486 Patent provides no data on any of the compounds that were tested, the Skilled Person "would have no difficulty in following the test procedures in the 486 Patent to generate data on the compounds described". This is as close as his first report comes to commenting on the "obvious to try" test. His second report contains no evidence related to the "obvious to try" test.

He also provided no testimony at trial related to the amount or duration of effort involved in obtaining the 021 Patent.

[197] In relation to Dr. Blackshaw's evidence at paragraph 74 of his first report, Dr. Dayan stated:

> 54. With respect to paragraph 74, while it is true that a skilled person could follow the test procedures in the '486 Patent to generate data on the compounds described in the '021 Patent, this is an oversimplification and an understatement of the work required to bridge the broad knowledge gap between the '486 Patent and the '021 Patent. The inventors did not have the benefit of the teachings of the '021 Patent when conducting their research on the multitudes of similar compounds. In my opinion, to arrive at the selected data and teachings of the '021 Patent, the inventors had to be creative in their thinking and make complicated decisions about the compounds to be tested, and on which weeds and crops, and at which rates. Their research and decision making would have been informed by their understanding of the broader strategic direction that the company was taking with its research and development activities, which in turn would have been informed by the broader context of the current needs in the agrichemical market and the availability of competing products.
>
> 55. To my knowledge, a major industrial chemical company such as Bayer will typically screen between 60,000 and 100,000 potentially herbicidal compounds a year on many different plants. The result of this tremendous effort is a massive collection of data. From that point, making sense of these data to discover a new selective herbicide requires high-level thinking and intuition….
>
> [Emphasis added]

[198] Dr. Blackshaw did not disagree with this evidence at trial. To the contrary, Dr. Blackshaw admitted on cross-examination that the data in the 021 Patent showed "thought" on the part of the inventors.

[199] Moreover, I note that this evidence from Dr. Dayan was in keeping with the evidence Dr. Dayan gave in his first expert report at paragraphs 43 to 45, wherein he described the amount of cost, time and effort involved in developing a new selective herbicide. It is important to note that, in his second report, Dr. Blackshaw stated that he was in general agreement with the evidence at paragraphs 43 to 45 of Dr. Dayan's first report and only took issue with the fact that the Skilled Person would not know the exact data regarding the number of molecules screened and time required leading to commercial products and the exact cost of commercialization for herbicide products as set out in Figures 1 and 2 of Dr. Dayan's first report.

[200] One of the difficulties with this case is that there is no evidence as to the actual course of conduct which culminated in the making of the invention of the 021 Patent. While the Defendants suggest that this lack of evidence should be held against the Plaintiffs, the Plaintiffs bear no burden on issues of patent invalidity. It is the Defendants who bear the burden of establishing, on a balance of probabilities, that the 021 Patent is invalid. In the absence of evidence of Bayer's actual course of conduct in arriving at the invention of the 021 Patent, the Defendants must rely on expert evidence and any other available evidence to establish that the invention of the 021 Patent was obvious. However, the Defendants have chosen not to lead evidence about the amount and duration of the effort required to achieve the invention of the 021 Patent and the evidence of Dr. Dayan contradicts the Defendants' theory that the effort involved was merely routine and not prolonged and arduous.

[201] I appreciate that Dr. Dayan can only opine as to the typical effort involved in the development of a new selective herbicide as opposed to the actual effort undertaken by Bayer, for

which none of the witnesses at trial, including Dr. Dayan, had any direct knowledge. However, the Defendants did not lead any evidence or obtain any admissions from Dr. Dayan that would suggest that Bayer arrived at the invention of the 021 Patent in a manner other than following the typical efforts outlined by Dr. Dayan. I am satisfied that these efforts involved more than simply "mechanical skill".

[202] In light of the CGK, the evidence disclosed in the 021 Patent regarding the use example testing and Dr. Dayan's evidence cited above, and notwithstanding that the efforts involved in the use of standard greenhouse and field testing on known economically important crops and the known problematic broadleaf and grassy weeds for those crops, I am satisfied that the testing undertaken to arrive at the invention was prolonged and arduous (i.e. marked by great effort).

[203] While the typical effort involved by companies such as Bayer as outlined by Dr. Dayan involved the screening of approximately 160,000 compounds over a five year period, in arriving at the invention of the 021 Patent, it is fair to say that the Skilled Person would start with the 327 compounds disclosed in the 486 Patent. As noted above, nothing in the 486 Patent points directly or indirectly to flucarbazone sodium as being a preferred compound of the 327 compounds. As such, there is every reason to believe that the Skilled Person would start their testing with all of the 327 compounds. Even if it could be said that the Skilled Person would have started with the eleven individually claimed compounds (which is not supported by the evidence), the subsequent testing of even just those eleven compounds (as described below) would still be prolonged and arduous.

[204] Selecting the compound is only one component of the required testing. It would also be necessary for the Skilled Person to consider the crops to target, the weeds to target and the range of application rates to use for each compound in both the greenhouse and field tests. Neither expert provided a finite list of the crops that would be candidates for testing. Dr. Dayan identified the most important crops as corn, soybean, wheat, and rice. Dr. Blackshaw did not provide a list, but did identify in his first report additional important cereal crops such as barley, oats, rye, triticale and sorghum. As for the weeds that would be candidates for testing, there is no dispute that both broadleaf and grassy weeds would be tested. Which specific broadleaf and grassy weeds would depend on the candidate crop, but the 486 Patent notes that the compounds can be used in relation to over 60 dicotyledon and monocotyledon weeds. I find that there is nothing in the 486 Patent or the CGK that would have specifically steered the Skilled Person towards testing the SATC compounds for the control of wild oats in crops of wheat or other cereals, over any of the other candidate crops and weeds and there was no expert evidence tendered by the Defendants to the contrary.

[205] As for the application rates, Dr. Blackshaw testified on direct examination that the testing would include a reasonably wide range of application rates, especially for a relatively new compound, and that the application rates would be refined as the testing continued.

[206] Taking into account the potential candidate compounds, crops, weeds and application rates, the evidence of Dr. Dayan was that the Skilled Person would, for each compound, run a battery of greenhouse testing for the candidate crops and the candidate weeds using a reasonably wide range of application rates. After reviewing the results of the greenhouse testing, the Skilled Person would

then identify a subset of the compounds that have interesting activity and then decide which compounds to take into the field for further testing and in relation to which crops and which weeds and at which application rates. The Skilled Person would start with small-scale field testing and if promising results were achieved, the Skilled Person would take that compound into larger field trials. We know from the 021 Patent that just the larger field trials for flucarbazone sodium in relation solely to crops of wheat involved over 400 tests. Dr. Blackshaw did not dispute any of this evidence from Dr. Dayan and I find that this evidence is in no way impacted by Dr. Dayan's aforementioned errors.

[207] Given the number of tests that would need to be conducted to consider the various combinations of compounds, weeds, crops and application rates and the need for their testing in at least greenhouse testing and then possible field testing (both small and large scale) if the initial results were promising, I am satisfied that the amount of testing involved to achieve the 021 invention was arduous.

[208] As for the duration of the greenhouse and field testing, Dr. Dayan could only speak to the data contained in his report which stated that in 2010 to 2014, it took approximately 11 years between the first synthesis of a compound and the first sale of the product. I accept that the duration of the greenhouse and field testing would only account for a portion of those 11 years. Dr. Blackshaw did not opine on this issue.

[209] In light of the number of tests that would need to be run on the various candidate compounds, candidate crops and candidate weeds at various application rates in greenhouse testing

followed by possible field testing (both small and large scale), I am satisfied that testing would occur over many years and thus the duration of the effort involved is properly characterized as prolonged.

[210] The Defendants rely on the following excerpt from the decision of Justice Phelan in *Amgen Canada Inc v Mylan Pharmaceuticals ULC*, 2015 FC 1244, to assert that conducting routine tests (even 200 of them) is not arduous:

> [92] Regarding the difference between Claim 5 and the prior art (particularly 828 and WO 959), there is no inventive difference as opined by Dr. Friedman. Cinacalcet, its clinical structure and its function, had been disclosed. Claim 5, at best, merely gave further specificity. As Amgen's witness Dr. Bartlett admitted, a POS could make Cinacalcet in view of the prior art and common general knowledge.
>
> [93] As to obvious or obvious to try, in my view Cinacalcet was obvious. At the very least, if there is a difference between the state of the art and Claim 5, it was obvious to try to achieve the invention covered by Claim 5. The 828 Patent and WO 959 disclosed compounds which included Cinacalcet, and are active at the calcium receptor on parathyroid cells. The POS would have found Cinacalcet by using known assays to screen compounds for activity at the calcium receptor.
>
> [94] As Cinacalcet's potency fell within the range set out in 828, and acts on the CaSR as stated in 828, it was self-evident (or should have been) that Cinacalcet would work on the CaSR with the expected potency.
>
> [95] Dr. Lubell outlined how easy and mechanical the process would be as mentioned in paragraph 38. There were only 200 molecules to test, of which Cinacalcet was one. Simple verification as this test was described is not an innovative step.

[211] I find that the circumstances of this case are distinguishable. The effort involved to arrive at the invention of the 021 Patent involved more than simply synthesizing 200 molecules. The effort, while employing known testing methods, was prolonged and arduous and would have involved the analysis of extensive data sets at various points of the testing to determine which of the hundreds of compounds to pursue, for which crops, for which weeds and at which rates. Numerous variables were at play that made the testing far more extensive than that involved in *Amgen Canada Inc v Mylan Pharmaceuticals ULC*.

[212] In conclusion, I find that, at best, the prior art provided speculation that flucarbazone sodium could be used as a selective herbicide to control wild oats and other weeds in crops of cereal (in particular wheat), which in hindsight proved to be correct. However, an invention is not made obvious because the prior art would have alerted the Skilled Person to the possibility that something might be worth trying.

[213] For the reasons set out above, I am not satisfied that the Defendants have established that any of the Asserted Claims of the 021 Patent are invalid for obviousness.

B. Anticipation

(1) General Principles

[214] Subsection 28.2(1) of the *Patent Act* addresses the requirement for novelty in a patented invention. Given that the applicant for the 021 Patent and the owner of the prior art patents are the same (Bayer), the relevant subsection is 28.2(1)(a), which provides:

28.2 (1) The subject-matter defined by a claim in an application for a patent in Canada (the "pending application") must not have been disclosed	28.2 (1) L'objet que définit la revendication d'une demande de brevet ne doit pas :
(a) before the one-year period immediately preceding the filing date or, if the claim date is before that period, before the claim date by the applicant, or by a person who obtained knowledge, directly or indirectly, from the applicant, in such a manner that the subject-matter became available to the public in Canada or elsewhere;	a) soit plus d'un an avant la date de dépôt de celle-ci, soit, si la date de la revendication est antérieure au début de cet an, avant la date de la revendication, avoir fait, de la part du demandeur ou d'un tiers ayant obtenu de lui l'information à cet égard de façon directe ou autrement, l'objet d'une communication qui l'a rendu accessible au public au Canada ou ailleurs;

[215] The parties agree that the relevant date for the anticipation analysis is September 21, 1998. The parties also agree that the Defendants have only raised anticipation by prior publication – namely, each of the 486 and 636 Patents.

[216] There are two requirements for establishing that prior art anticipates – namely, prior disclosure and enablement [see *Sanofi-Synthelabo*, *supra* at para 26; *Hospira Healthcare Corporation v Kennedy Trust for Rheumatology Research*, *supra* at para 66].

[217] Anticipation by prior publication is a difficult defence to establish as the Court recognizes that "it is all too easy after an invention has been disclosed to find its antecedents in bits and pieces of earlier learning" [see *Free World Trust, supra* at para 25]. This difficulty was further articulated at paragraph 26 of *Free World Trust* (citing *Beloit Canada Ltd v Valmet Oy*, *supra*) as follows:

> One must, in effect, be able to look at a prior, single publication and find in it all information which, for practical purposes, is needed to produce the claimed invention without the exercise of any inventive skill. The prior publication must contain so clear a direction that a

> skilled person reading and following it would in every case and without possibility of error be led to the claimed invention.

[218] With respect to prior disclosure, the requirement of prior disclosure means that a single prior publication must disclose the subject matter which, if performed, would necessarily result in infringement of that patent. There is no room for trial and error or experimentation by the Skilled Person. The Skilled Person is simply reading the prior patent for the purpose of understanding it [see *Sanofi-Synthelabo*, *supra* at para 25; *Free World Trust*, *supra* at para 26].

[219] The disclosure requirement was articulated by the England and Wales Court of Appeal as follows in *General Tire & Rubber Co v Firestone Tyre & Rubber Co*, *supra* at 486:

> To anticipate the patentee's claim the prior publication must contain clear and unmistakeable directions to do what the patentee claims to have invented […] A signpost, however clear, upon the road to the patentee's invention will not suffice. The prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee.

[220] It is not enough for a prior publication to merely "include" or "encompass" the claimed invention – a broad disclosure will not necessarily anticipate a later, more specific claim [see *Apotex Inc v Shire LLC*, *supra* at para 45, citing *Ranbaxy Laboratories v Astrazeneca AB*, [2013] FCA 368 (Aus)].

[221] With respect to enablement, enablement means that the Skilled Person would have been able to perform the invention. The Skilled Person is assumed to be willing to make trial and error experiments to get the invention to work, but not so many as to create an undue burden or require

any inventive step [see *Sanofi-Synthelabo, supra* at paras 27 and 33; *Mediatube II, supra* at para 100].

[222] In *Sanofi-Synthelabo*, Justice Rothstein outlined the following non-exhaustive list of factors to be considered with respect to enablement:

A. Enablement is to be assessed having regard to the prior patent as a whole including the specification and the claims. There is no reason to limit what the Skilled Person may consider in the prior patent in order to discover how to perform or make the invention of the subsequent patent. The entire prior patent constitutes prior art.

B. The Skilled Person may use their CGK to supplement information contained in the prior patent. CGK means knowledge generally known by persons skilled in the relevant art at the relevant time.

C. The prior patent must provide enough information to allow the subsequently claimed invention to be performed without undue burden. When considering whether there is undue burden, the nature of the invention must be taken into account. For example, if the invention takes place in a field of technology in which trials and experiments are generally carried out, the threshold for undue burden will tend to be higher than in circumstances in which less effort is normal. If inventive steps are required, the prior art will not be considered as enabling. However, routine trials are acceptable and would not be considered undue burden. But experiments or trials and errors are not to be prolonged even in fields of

technology in which trials and experiments are generally carried out. No time limits on exercises of energy can be laid down; however, prolonged or arduous trial and error would not be considered routine.

D. Obvious errors or omissions in the prior patent will not prevent enablement if reasonable skill and knowledge in the art could readily correct the error or find what was omitted.

[223] If a published reference fails to either disclose or enable the essential elements of a claim, the patent claim is novel, or not anticipated [see *Apotex Inc v Shire LLC, supra* at para 36].

(2) Analysis

[224] My findings in relation to obviousness are fatal to the Defendants' allegation of anticipation. With respect to disclosure, I have already found that the 486 Patent/636 Patent did not disclose that flucarbazone sodium was a selective herbicide. Moreover, the 486 Patent/636 Patent did not disclose all of the information that would, for practical purposes, be needed to produce the claimed invention of the 021 Patent without the exercise of any inventive skill. The Skilled Person would not know why to select flucarbazone sodium from among the 327 compounds, for which crop and for which weed. Nothing in the 486 Patent provided "clear and unmistakeable direction" to the Skilled Person to select flucarbazone sodium as a selective herbicide for the control of wild oats and other weeds in crops of wheat, such that the Skilled Person would not in every case and without possibility of error be led to the claimed invention.

[225] With respect to enablement, I have already found that the experimentation required to move from the 486 Patent/636 Patent to the 021 Patent would be prolonged and arduous. As such, the amount of experimentation required by the Skilled Person to get the invention to work would create an undue burden.

[226] Accordingly, I am not satisfied that the Defendants have demonstrated that the Asserted Claims of the 021 Patent are anticipated.

C. Insufficiency

(1) General Principles

[227] Pursuant to subsections 27(3)(a) and (b) of the *Patent Act*, the specification of an invention must:

The specification of an invention must	Le mémoire descriptif doit :
(a) correctly and fully describe the invention and its operation or use as contemplated by the inventor;	a) décrire d'une façon exacte et complète l'invention et son application ou exploitation, telles que les a conçues son inventeur;
(b) set out clearly the various steps in a process, or the method of constructing, making, compounding or using a machine, manufacture or composition of matter, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it pertains, or with which it is most closely connected, to make, construct, compound or use it;	b) exposer clairement les diverses phases d'un procédé, ou le mode de construction, de confection, de composition ou d'utilisation d'une machine, d'un objet manufacturé ou d'un composé de matières, dans des termes complets, clairs, concis et exacts qui permettent à toute personne versée dans l'art ou la science dont relève l'invention, ou dans l'art ou la science qui s'en rapproche le plus, de confectionner, construire, composer ou utiliser l'invention;

[228] For a patent to be valid, the Skilled Person must be able to produce the invention using only the instructions contained within the disclosure and the Skilled Person's CGK [see *Teva Canada Ltd v Leo Pharma Inc*, 2017 FCA 50 at paras 43-44]. The disclosure must teach the Skilled Person how to put all embodiments of the invention into practice, without the need for exercising inventive ingenuity or undue experimentation. However, some non-inventive trial and error experimentation may be required [see *Seedlings Life Science Ventures, LLC v Pfizer Canada ULC*, 2021 FCA 154 at para 68]. The disclosure will be found to be insufficient if it necessitates the working out of a problem [see *Idenix Pharmaceuticals Inc v Gilead Pharmasset LLC*, 2017 FCA 161 at para 19].

[229] Sufficiency is a question of fact, to be determined as of the date the application was filed – in this case, April 13, 2000. The onus is on the Defendants to establish by way of evidence, on a balance of probabilities, that the 021 Patent is insufficient as of that date [see *Merck Sharp & Dohme Corp v Wyeth LLC*, 2021 FC 317 at para 135].

(2) Analysis

[230] The only specific submission made by the Defendants on the issue of insufficiency was as follows:

> 110. If Dr. Dayan's skilled person is accepted, then the 021 Patent is invalid for insufficiency. If the skilled person is not the person "deciding what will be done", then the skilled person will not be able to produce the alleged invention of the 021 Patent. In Dr. Dayan's view, the skilled person needs to be told that by others.

[231] Dr. Blackshaw did not directly provide an opinion in relation to the allegation of insufficiency and Dr. Dayan did not testify that his Skilled Person could not read and understand the 021 Patent so as to be unable to produce the invention. That question was never squarely put to Dr. Dayan. He did testify, however, that "somebody skilled in the art who had described it can look at the patent, look at the examples and understand what it means". I find that there is simply no expert evidence to support the Defendants' allegation of insufficiency and accordingly, it is rejected.

D. Claims Broader

(1) General Principles

[232] The subject matter of a claim will be overbroad if it exceeds the invention that was made or if it exceeds the invention disclosed in the specification [see *Pfizer Canada Inc v Canada (Minister of Health)*, 2008 FC 11 at paras 45-46; *Eli Lilly Canada Inc v Apotex Inc*, 2018 FC 736 at para 131]. Overbreadth arises from subsections 27(3) and 27(4) of the *Patent Act* and can be considered an extension of the bargain theory in patent law, ensuring that an inventor does not claim more than what they invented in good faith and disclosed [see *Seedlings Life Science Ventures, LLC v Pfizer Canada ULC*, *supra* at paras 50-51 and 60, citing *Western Oilfield Equipment Rentals Ltd v M-I LLC*, 2021 FCA 24 at paras 128-130].

(2) Analysis

[233] As was the case with insufficiency, the Defendants dedicated little attention to their allegation of claims broader. After setting out the law, the entirety of the Defendants' submissions were as follows:

> 103. As set out above, a compound cannot be a selective herbicide *simpliciter*. Rather, it is necessary to specify the specific crop and weed when discussing the effect of a herbicide. Even for cereal crops, the skilled person would know that tolerance to flucarbazone sodium in wheat would not necessarily translate into acceptable tolerance levels with other cereal crops. Indeed, it is uncommon for all cereal crops to exhibit sufficient tolerance to a given herbicide.
>
> 104. In the 021 Patent, the only crop tested was wheat. Yet claims 1-5 are not specific to control of weeds in wheat. Claims 7-10 are dependent from claim 5, and hence include the lack of specificity to wheat.
>
> 105. As a result, claims 1-5 and 7-10 of the 021 Patent are broader than any invention made or described. Those claims are invalid for claims broader.

[234] While the Defendants assert that claims 2, 3, 4 and 5 are invalid for claims broader, they have not been asserted by the Plaintiffs as having been infringed. As there is no counterclaim seeking declarations of invalidity, claims 2, 3, 4 and 5 are not at issue in this proceeding and thus no finding will be made regarding their validity or lack thereof.

[235] In relation to claims 7 through 10, even if the Defendants' allegation of claims broader in relation to claim 5 were accepted, the Defendants' argument ignores the structure of those claims. Claims 7, 8 and 9 are multiply-dependent claims. Claims 7 and 8 depend on either of claims 5 or

6 and claim 9 depends on any of claims 5 through 8. Even if claim 5 is invalid, claim 6 would not suffer the same fate as it is specific to the crop of spring-sown wheat and the Defendants have not asserted that claim 6 is invalid on the basis of overbreadth. As such, each of claims 7 through 9 would remain valid to the extent that they depend on claim 6. The same holds true for claim 10, which depends on the method of claim 9, which in turn depends on any of claims 5 through 8 [see *Consolboard Inc v MacMillan Bloedel (Sask) Ltd*, [1981] 1 SCR 504].

[236] With respect to claim 1, the Defendants made no specific submissions in relation thereto. I agree with the Plaintiffs that claim 1 is different from the other claims, as it is a composition claim, rather than a use or method claim. The Defendants appear to be asserting that notwithstanding this difference, the words "a selective-herbicidal composition" incorporate the requirement that a specific weed and a specific crop be claimed. However, I agree with the Plaintiffs that the Defendants' assertion that selectivity requires an asserted weed and crop for the purpose of claim 1 was not pleaded by the Defendants in their Twice Amended Statement of Claim. I would note that this was raised by the Plaintiffs in their written closing arguments and the Defendants did not attempt to refute the assertion in their oral closing arguments.

[237] Therefore, I am not satisfied that the Defendants have established that any of the Asserted Claims of the 021 Patent are invalid for being broader than the invention.

XIII. Liability of NewAgco

[238] The Plaintiffs assert that NewAgco is liable to the Plaintiffs on two bases: (1) inducement; and (2) joint and several liability.

A. Inducement

(1) General Principles

[239] Justice McHaffie recently summarized the law on inducing infringement in *Guest Tek Interactive Entertainment Ltd v Nomadix, Inc*, 2021 FC 276, where he stated:

> [56] Inducing infringement is simply a form of patent infringement rather than a distinct tort: *Hospira* at para 45; *Western Oilfield (FCA)* at para 60. The parties agree that allegations of inducing infringement are governed by the three-part test adopted in *Warner Lambert Co v Wilkinson Sword Canada Inc*, [1988] FCJ No 70, 19 CPR (3d) 402 (FCTD) and reiterated by the Federal Court of Appeal in *Corlac* at para 162:
>
> > It is settled law that one who induces or procures another to infringe a patent is guilty of infringement of the patent. A determination of inducement requires the application of a three-prong test. First, the act of infringement must have been completed by the direct infringer. Second, the completion of the acts of infringement must be influenced by the acts of the alleged inducer to the point that, without the influence, direct infringement would not take place. Third, the influence must knowingly be exercised by the inducer, that is, the inducer knows that this influence will result in the completion of the act of infringement.
> >
> > [emphasis added; citations omitted.]

> [57] With respect to the first component of the test, "[d]irect infringement occurs when the direct infringer has performed all of the essential steps in the claimed invention": *Western Oilfield (FCA)* at para 70. This does not necessarily require evidence coming directly from the direct infringer, but there must be evidence from which the Court can conclude on a balance of probabilities that direct infringement has occurred: *Western Oilfield Equipment Rentals Ltd v M-I LLC*, 2019 FC 1606 at paras 126, 129, aff'd *Western Oilfield (FCA)* at paras 67–68.
>
> [58] Guest Tek argued the second requirement creates a "but for" test that asks whether the infringing conduct would have occurred but for the defendant's conduct: *Western Oilfield (FC)* at paras 127, 130, aff'd *Western Oilfield (FCA)* at para 70. I agree the "without the influence" aspect of the second element of the *Warner Lambert/Corlac* test creates a "but for" test. But the test is whether the infringement would have occurred but for the *defendant's influence*, and not simply but for the *defendant's sale of a product* used by the direct infringer in the course of infringement. Again, proof of influence need not involve direct evidence from customers that they were induced to infringe by instructions given by the inducer, if this can be inferred from the inducer's and the inducee's conduct: *Western Oilfield (FC)* at paras 126, 130–131, aff'd *Western Oilfield (FCA)* at paras 67–69.
>
> [59] Similarly, with respect to the knowledge component in the third element of the test, as Justice O'Reilly stated in *Western Oilfield (FC)*, "the alleged inducer simply has to know what the third party is likely to do in response to its influence": *Western Oilfield (FC)* at para 133. The issue is not simply knowing what the third party is likely to do. It is knowing what the third party is likely to do *in response to the defendant's influence*.
>
> [Emphasis in original]

(2) Analysis

[240] I agree with the Plaintiffs that this Court and the Federal Court of Appeal have found that inducement can be established based on the language and information in a drug product monograph and that there is an analogy to be made as between a drug product monograph and the

end-use label for an herbicide [see *Janssen Inc v Pharmascience Inc*, 2022 FC 62 at paras 125, 129; *Abbott Laboratories Limited v Canada (Ministry of National Health and Welfare)*, 2006 FC 1411 at para 40, aff'd 2007 FCA 251].

[241] In that regard, the Defendants do not dispute that AgraCity induced growers to infringe the 021 Patent based on the language contained in the end-use label for HIMALAYA, which label growers are required to follow under the *Pest Control Products Act*.

[242] The crux of this issue, however, is what role, if any, NewAgco had in relation to the end-use label and the marketing of HIMALAYA and whether NewAgco's conduct rises to the level required for inducement under the second prong of the inducement test.

[243] The evidence before the Court is that NewAgco holds the registration for HIMALAYA with the PMRA and its name appears on the end-use label, together with AgraCity's name, as required by the PMRA. AgraCity and NewAgco entered into an agreement that permits AgraCity to distribute HIMALAYA products that are covered by the PMRA approvals held by NewAgco. AgraCity imported the HIMALAYA products into Canada and sold them to growers. The press release announcing the launch of the HIMALAYA products was issued by AgraCity on its website. As noted above, the press release notes that "AgraCity Canada (NewAgco) announced that they have received regulatory approval through the Canadian Pest Management Regulatory Agency (PMRA) for Himalaya". The balance of the press release refers only to AgraCity and the Court has no evidence of any marketing efforts undertaken by NewAgco.

[244] The second prong of the inducement test sets a high bar [see *Janssen Inc v Apotex Inc*, 2022 FC 107 at para 127]. I am not satisfied that: (a) the inclusion of NewAgco's name on the end-use product label, as the holder of the PMRA registration (not the distributer) and as required by the legislation; and (b) the reference to NewAgco in AgraCity's single press release, without anything more, constitute acts by NewAgco that would have influenced growers to infringe. In fact, in the case of the latter, there is no evidence that the press release was anything but the act of AgraCity and there is no evidence that NewAgco had any involvement in the marketing of HIMALAYA.

[245] Moreover, the fact that the Defendants admitted on discovery that NewAgco is responsible for the manufacture of HIMALAYA from the perspective of Health Canada/PMRA does not make NewAgco the manufacturer of the HIMALAYA products for the purpose of an infringement or inducement analysis and the Plaintiffs have cited no authority that would support such an inference being drawn. To the contrary, the evidence before the Court is that a third party manufactures HIMALAYA and the products are then imported into Canada by AgraCity alone.

[246] Accordingly, I am not satisfied that the Plaintiffs have established that NewAgco is liable for inducing infringement of the Asserted Claims of the 021 Patent.

B. Joint and Several Liability

[247] The Plaintiffs assert that NewAgco should be found jointly and severally liable for the acts of infringement of AgraCity because the two companies "operated as a unit". The Plaintiffs rely

on the decision of Justice Phelan in *Weatherford Canada Ltd v Corlac Inc*, 2010 FC 602, aff'd 2011 FCA 228, in which he found that two companies (Corlac and Corlac Equipment) were jointly and severally liable for infringement as one of the companies was controlled by the other to the extent that they operated as a unit. In making that finding, Justice Phelan noted the following:

> [207] As to the issue of joint and several liability with respect to Corlac Equipment and Corlac, the discovery evidence read-in at trial established that Corlac was the parent company of Corlac Equipment, owned all the shares and exercised control over the operations of Corlac Equipment and Corlac Equipment (1998) Ltd. The major shareholder of the Corlac group of companies, Dan Echino, was also President and Director of Corlac and Corlac Equipment.
>
> [208] Corlac Equipment manufactured and sold the drive heads and the stuffing boxes in issue in this litigation.
>
> [209] The integrated operations and business of the Corlac group of companies is evident from not only the common control but the fact that such items as manufacturer's label were firstly in Corlac's name, then that of Corlac Equipment's and drawings of the infringing stuffing boxes and associated parts' lists were under Corlac's name.
>
> [210] Further, stuffing box invoices and work orders were on Corlac Equipment's letterhead and stuffing box sales orders were under Corlac's name from 1999-2001. Finally, the audited consolidated financial statements of Corlac included the earnings and expenses for the sales of rotating stuffing boxes.
>
> [211] The Plaintiffs have raised a reasonable basis from which to conclude that the Corlac group of companies are jointly and severally liable by virtue of common direction and control and benefit from the infringement of the '937 Patent.
>
> [212] As held in *Nedco Ltd. v. Clark et al* (1973), 43 D.L.R. (3d) 714 at paragraph 19, which decision was cited with approval in *Northeast Marine Services Ltd. v. Atlantic Pilotage Authority* (1995), 179 N.R. 17 (F.C.A.), a court will "pierce the corporate veil" to find joint and several liability where one corporation is controlled by the other to the extent that they operate as a unit.

> [213] The Defendants, again as with respect to the issue of infringement, put no witness forward to show the absence of control and dominance of the Corlac group. These Defendants were in the best position to put forward that evidence and in the context of this case, the Court is prepared to draw the adverse inference that such evidence would be harmful to these Defendants.

[248] The Plaintiffs assert that NewAgco should be found jointly and severally liable with AgraCity on the basis that:

A. NewAgco is the registrant for HIMALAYA with the PMRA and is responsible for the manufacture of the product from Health Canada's perspective;

B. NewAgco's name appears on the end-use label for the HIMALAYA products;

C. NewAgco and AgraCity are effectively run as a single unit as: (i) Mr. Mann is the President and CEO of both companies; (ii) Mr. Mann is a director of both companies; (iii) Mr. Mann decided to register the HIMALAYA products; (iv) Mr. Mann decided that NewAgco would permit AgraCity to distribute the HIMALAYA products, entered into an agreement on behalf of both companies to that effect and set the royalty rate to be paid from AgraCity to NewAgco; (v) Mr. Mann decided what products NewAgco would register and AgraCity would sell; (vi) AgraCity provided accounting services to NewAgco; (vii) Mr. Mann decided how to divide up the profits or revenues between AgraCity and NewAgco; and (viii) AgraCity was the exclusive distributor of products for which NewAgco held registrations in 2019.

[249] While all of the aforementioned facts relied upon by the Plaintiffs were established by the evidence, I am not satisfied that they provide a sufficient basis for the Court to "pierce the corporate veil" to find joint and several liability.

[250] Unlike in *Corlac*, there is no evidence before the Court that NewAgco is the parent company of AgraCity, owned all of the shares of AgraCity and exercised control over the operations of AgraCity. The corporate profile reports for the two companies show that Mr. Mann owns all of the shares of NewAgco and 50% of the shares of AgraCity, the other fifty percent being held by his brother, not NewAgco. The evidence does not demonstrate that NewAgco controls AgraCity. While the Plaintiffs assert that a parent-subsidiary relationship is not required when the same person is in control of both companies, the Plaintiffs have not provided the Court with any case law in which the corporate veil was pierced in such circumstances.

[251] Moreover, the evidence does not demonstrate that their operations are integrated and the Plaintiffs point to no specific evidence to suggest as much (such as sales orders or invoices under NewAgco's name or consolidated financial statements), other than the accounting services provided by NewAgco to AgraCity. I find that that alone does not demonstrate integrated operations. Further, unlike in *Corlac*, the evidence does not demonstrate that NewAgco benefited from the infringement, as no royalty was paid or booked.

[252] The Plaintiffs invited the Court to draw an adverse inference from the fact that the Defendants did not call Mr. Mann to testify at trial to demonstrate the absence of control by NewAgco of AgraCity. I decline to do so. The Defendants were under no obligation to call Mr.

Mann to testify at trial, nor did they bear any burden of proof to demonstrate that the Defendants were separate companies with separate operations.

[253] Accordingly, I am not satisfied that the Plaintiffs have established any liability on the part of NewAgco. The action will therefore be dismissed as against NewAgco.

XIV. Remedies

[254] The Plaintiffs seek damages in the form of lost profits due to the Defendants' sales of HIMALAYA on the basis that 90% of HIMALAYA sales displaced sales of EVEREST 3.0 AG or SIERRA 3.0 AG. In the alternative, if the Court finds that the evidence does not support a 90% capture rate, then the Plaintiffs elect a disgorgement of the Defendants' profits on 100% of the HIMALAYA sales.

[255] There are few remaining areas of disagreement between the parties related to remedies. The parties are in agreement as to the amount of HIMALAYA sold during the relevant time, the quantum of the Plaintiffs' lost profits based on a 100% capture rate and how to calculate any lost profits using a lower capture rate, and the quantum of the Defendants' profits from the sales of HIMALAYA during the relevant period of time using a full cost methodology, with the sole exception being the treatment of any royalty payment from NewAgco to AgraCity.

[256] In relation to the Plaintiffs' claim for damages based on their lost profits, the key issue that remains in dispute is whether the Plaintiffs have established a 90% capture rate – put differently,

that 90% of the purchasers that purchased HIMALAYA would have, had HIMALAYA not been available, purchased EVEREST 3.0 AG or SIERRA 3.0 AG. The Defendants assert that the Plaintiffs have failed to prove a 90% capture rate.

[257] Dr. Dayan was specifically asked to opine on whether growers that purchased HIMALAYA in 2019 were likely to have had flucarbazone sodium in their weed management program for that year and therefore, would have been likely to purchased EVEREST 3.0 AG or SIERRA 3.0 AG if they had not purchased HIMALAYA. He opined as follows:

> 171. To my understanding, growers make their selective-herbicide purchases based on the weeds that they need to control that year and their weed management programs that are in place from time to time. Growers often rely on their own experience and recommendations from crop consultants and/or country or regional extension agents, chemical supply resellers, as well as sales representatives.
>
> 172. A weed management program can include rotating crops so that the same weeds do not need to be controlled with the same herbicide year after year. It can also include rotating between different herbicides with different modes of action to avoid the problem of herbicide resistance that can arise if the same weeds need to be controlled too often using the same types of herbicides with the same modes of action. Therefore, growers include selective herbicides in their weed management program for a given year based, in part, on the type of crop they are growing that year and their choice of active ingredient in the herbicide and its "mode of action" or "group".
>
> 173. Growers also understand that with a group, each active ingredient may have its own particular characteristics. This is reflected in the wide variety of labelled uses of herbicides, even within the same group. As a result, growers tend to identify specific active ingredients of interest, and then purchase a product containing the desired active ingredient.
>
> 174. As I have explained, for spring wheat growers in Canada, the biggest problem weed is wild oat. As of 2019, the available groups

> for the selective control of wild oat in wheat included groups 1, 2 and 15 (formerly group 8).
>
> 175. Therefore, if a grower purchased HIMALAYA in March or April 2019, I believe that it was more likely than not that they were interested in applying flucarbazone sodium – a Group 2 herbicide – that was known for treating wild oat in wheat during the Spring of 2019.
>
> 176. If a grower who purchased HIMALAYA in 2019 had not been able to purchase HIMALAYA, I believe that more likely than not, the grower would have purchased another flucarbazone sodium herbicide for the elective control of wild oats in wheat.
>
> 177. I understand that the plaintiffs were the only company offering a flucarbazone sodium product for the selective control of wild oats in wheat in 2019, namely EVEREST 3.0 (also sold by Syngenta under the name SIERRA 3.0).
>
> 178. Therefore, if growers had not purchased HIMALAYA in 2019 they would likely have purchased EVEREST 3.0 (or SIERRA 3.0) instead.

[258] Dr. Blackshaw was not asked to, nor did he, opine on this issue in his first report. In his second report, he commented on Dr. Dayan's first report as follows:

> 25. It should be noted that there are several herbicides other than flucarbazone available for wild oat control in wheat in Canada. Triallate is a Group 15 herbicide and clodinafop-propargyl, fenoxaprop-p-ethyl and pinoxaden are Group 1 herbicides that have been used for many years. If farmers want to use a Group 2 herbicide to control wild oat populations that are resistant to Group 1 or Group 8 herbicides they have several choices. Flucarbazone, imazamethabenz-methyl, pyrozsulam, and thiencarbazone-methyl are all Group 2 herbicides registered for wild oat control in wheat in Canada. Thus, flucarbazone is not the automatic choice for this purpose.
>
> 26. Farmers consider many factors when purchasing a herbicide, such as which herbicides are registered for use in a given crop, which herbicides control the weeds of economic concern in their specific crop fields, and which herbicides are useful in a multi-year

> weed resistance management program. Like all consumers, farmers are very cost conscious when making herbicide purchasing decisions. I have been advised that the Himalaya product is a generic product having a lower cost per treated acre. Accordingly, it is likely that at least some purchases of Himalaya displaced a non-flucarbazone product.

[259] During his cross-examination, Dr. Blackshaw admitted that he did not consider any of the marketing materials of the parties for their respective products.

[260] Before turning to the marketing materials, I note that HIMALAYA was approved for pre-plant, pre-emergence and post-emergence application on spring wheat (excluding durum wheat) and for post-emergence application on spring wheat (including durum wheat) for the control of wild oat, green foxtail, volunteer tame oat and certain broadleaf weeds (redroot pigweed, wild mustard, stinkweed, volunteer canola, green smartweed and shepherd's purse). EVEREST 3.0 AG and SIERRA 3.0 AG were approved for post-emergence application on spring wheat (including durum wheat) and winter wheat for control of the same grassy weeds as HIMALAYA (plus some additional grassy weeds) and the same broadleaf weeds as HIMALAYA (with one additional broadleaf weed).

[261] The HIMALAYA product sheet, under the heading "Why Use Himalaya", stated that it had the "same active as Everest", "proven control of wild oats and grass weed", "control of group 1 resistant wild oats" and "extended control of wild oats and green foxtail". The product sheet also noted that it could be used on any of the weeds noted above for which it was approved.

[262] AgraCity's press release announcing the launch of the HIMALAYA product, entitled "HUGE NEWS - HIMALAYA™ Same Active As Everest Is Now Available From AgraCity", noted that HIMALAYA was the first generic version of flucarbazone herbicide, would give growers "an affordable new option to control grass and broadleaf weeds in wheat, plus it will have the same quality and high performance of the brand name flucarbazone products on the market today" and "provides the same quality and high-performance control of wild oats, grass and broadleaf weeds as the brand name flucarbazone, and also offers control of Group 1 resistant wild oats and green foxtail, flushing control of wild oats, a wide window of application, excellent crop safety, and numerous tank mix options".

[263] I am satisfied that AgraCity's marketing materials for HIMALAYA were designed to specifically target growers who would otherwise have purchased EVEREST 3.0 AG or SIERRA 3.0 AG, even choosing a name for their product that was a "play" on the Plaintiffs' products' names.

[264] However, the limitation of Dr. Dayan's evidence is that it is premised on the growers purchasing HIMALAYA because they wanted a Group 2 herbicide with the activity of flucarbazone sodium to treat wild oats in wheat. As HIMALAYA had more than one approved use and as other non-flucarbazone herbicides existed on the market to treat wild oats in wheat, I find that it is likely that at least some purchases of HIMALAYA displaced a non-flucarbazone herbicide intended to treat wild oats or one of the other approved weed uses. In that regard, Dr. Dayan acknowledged on cross-examination that it was possible that at least some purchases of HIMALAYA displaced a non-flucarbazone herbicide.

[265] The question then becomes what percentage of HIMALAYA purchases displaced a non-flucarbazone herbicide? There was no evidence before the Court as to what percentage of the purchases of EVEREST 3.0 AG/SIERRA 3.0 AG or HIMALAYA were made by growers specifically looking for a flucarbazone sodium herbicide, nor was there any evidence as to what percentage of growers purchased the products for one of the approved uses other than the control of wild oats in crops of wheat. No evidence was given by any growers, nor was any expert evidence presented regarding purchasers and market share.

[266] Mr. McCrea testified about the Plaintiffs' marketing of EVEREST and about its competitors, although his evidence was very brief and few details were given. He testified that UPL Canada marketed EVEREST in a way to differentiate it from its two main Group 2 competitors, Simplicity and Velocity. With respect to another competitor – Assert – Mr. McCrea testified that it never had any significant market share and was not a strong wild oat herbicide. He testified that none of their competitors had the flush after flush or residual control of the EVEREST product. While Mr. McCrea did provide some insight regarding the Plaintiffs' competitors, he did not provide any evidence regarding the Plaintiffs' actual market share for growers looking for a Group 2 herbicide to control wild oats, nor did he provide any evidence of the Plaintiffs' market share for growers looking to control broadleaf or other grassy weeds in crops of wheat.

[267] Dr. Dayan acknowledged on cross-examination that he did not know how many growers used HIMALAYA for the control of wild oats in wheat versus for the control of broadleaf weeds.

[268] Moreover, I am not satisfied that the fact that HIMALAYA was not marketed against non-flucarbazone sodium products leads to the conclusion that no material amount of HIMALAYA sales could have displaced non-flucarbazone sodium herbicides, particularly given the absence of market share data in relation to the EVERST 3.0 AG/SIERRA 3.0 AG products.

[269] While I acknowledge that damages calculations are "not capable of being mathematically ascertained by any exact figure" [see *AlliedSignal Inc v DuPont Canada Inc*, (1998) 78 CPR (3d) 129 (FCA) at para 20], I am not satisfied that the Plaintiffs have put forward sufficient evidence to demonstrated a capture rate as high as 90%. I find that the actual capture rate is something less than 90%.

[270] Having found that the evidence is not capable of supporting a 90% capture rate, the Plaintiffs request that the Court award a disgorgement of the Defendants' profits on a full cost accounting basis. The Defendants no longer contest the Plaintiffs' entitlement to elect an accounting of profits and I am satisfied that I should exercise my discretion to permit the Plaintiffs to make such an election. However, as I have found that NewAgco has no liability to the Plaintiffs, it is only the profits of AgraCity that are at issue.

[271] In their closing arguments, the Plaintiffs advised that they now accept all aspects of Mr. Ross' calculation of AgraCity's profits using the full cost approach with one exception – namely, whether a deduction to the profits should be made on account of the royalty that the Plaintiffs assert should have been paid by AgraCity to NewAgco. The Plaintiffs assert that the royalty (calculated at [redacted]) was not paid by AgraCity to NewAgco solely to avoid liability in this

proceeding and that while not paid or booked, the Court should nonetheless find that it is a proper cost to be deducted from AgraCity's revenues as there remained a contractual obligation on the part of AgraCity to pay the royalty to NewAgco. The irony of the Plaintiffs' position regarding the royalty is that they are asking the Court to reduce, not increase, the amount awarded to them.

[272] Unlike the consideration of the capture rate which occurs in the "but for" world, the assessment of AgraCity's profits is a "real world" exercise and in the real world, the evidence from Ms. Hoshowsky is that the royalty was not paid and not deferred. In such circumstances, I see no basis to deduct it as against AgraCity's revenues.

[273] Accordingly, I accept the evidence of Mr. Ross that AgraCity's profits, calculated on a full costs basis and not taking into account any royalty payment, were $227,409 before prejudgment interest. This amount shall be paid by AgraCity to the Plaintiffs.

XV. Prejudgment Interest Rate

[274] I am satisfied that the Plaintiffs are entitled to an award of prejudgment interest and there has been no suggestion by the Defendants as to any basis upon which such an award should be refused.

[275] The parties agree that prejudgment interest would commence in April 2019 and should not be compounded, but disagree on the appropriate rate of prejudgment interest.

[276] Subsection 36(2) of the *Federal Courts Act* provides:

A person who is entitled to an order for the payment of money in respect of a cause of action arising outside a province or in respect of causes of action arising in more than one province is entitled to claim and have included in the order an award of interest on the payment at any rate that the Federal Court of Appeal or the Federal Court considers reasonable in the circumstances, calculated	Dans toute instance devant la Cour d'appel fédérale ou la Cour fédérale et dont le fait générateur n'est pas survenu dans une province ou dont les faits générateurs sont survenus dans plusieurs provinces, les intérêts avant jugement sont calculés au taux que la Cour d'appel fédérale ou la Cour fédérale, selon le cas, estime raisonnable dans les circonstances et :
(a) where the order is made on a liquidated claim, from the date or dates the cause of action or causes of action arose to the date of the order; or	a) s'il s'agit d'une créance d'une somme déterminée, depuis la ou les dates du ou des faits générateurs jusqu'à la date de l'ordonnance de paiement;
(b) where the order is made on an unliquidated claim, from the date the person entitled gave notice in writing of the claim to the person liable therefor to the date of the order.	b) si la somme n'est pas déterminée, depuis la date à laquelle le créancier a avisé par écrit le débiteur de sa demande jusqu'à la date de l'ordonnance de paiement.

[277] As the cause of action in this case is not limited to a specific province, pursuant to subsection 36(2), the Court is vested with the discretion to fix the rate of prejudgment interest at any rate that the Court considers reasonable in the circumstances.

[278] The Plaintiffs submit that prejudgment interest should be awarded at the rate of 2%, which is in keeping with the prejudgment interest rate in the Ontario *Courts of Justice Act*, RSO 1990, cC43, s.127(2). The Defendants submit that a reasonable prejudgment interest rate is the floating monthly minimum rate at which the Bank of Canada makes short term advances to the banks (i.e. the bank rate), which varied during the applicable months from 0.5% to 2.0%. The parties made no additional submissions as to the reasonableness (or lack thereof) of the proposed rates.

[279] This Court has awarded prejudgment interest at the bank rate in a number of decisions, including recently in *Bombardier Recreational Products Inc v Arctic Cat, Inc*, 2020 FC 691 [see also *Janssen-Ortho Inc v Novopharm Ltd, supra* at para 135; *Merck & Co, Inc v Apotex Inc*, 2006 FC 524 at para 240, aff'd 2006 FCA 323; *Laboratoires Servier, Adir, Oril Industries, Servier Canada Inc v Apotex Inc*, 2008 FC 825 at para 513]. I agree with the Defendants that as there is no connection to Ontario, the *Courts of Justice Act* should not guide the Court's determination. The Plaintiffs made no submissions as to the unreasonableness of the bank rate (notwithstanding that they were on notice of the Defendants' position regarding this rate as it was one of the rates used in Mr. Ross' calculations) and in the circumstances, I am satisfied that it is reasonable.

[280] Mr. Ross calculated the amount of prejudgment interest on AgraCity's profits using the bank rate as $7,296, which calculation I accept. This amount shall accordingly be paid by AgraCity to the Plaintiffs.

XVI. Costs

[281] The parties requested at trial that costs be reserved to await either agreement by counsel, or, failing agreement, written submissions. The request was granted. In the event the parties cannot agree on the issue of costs, the parties shall, within 30 days of the date of this Judgment, file a jointly-proposed timetable for the service and filing of their written submissions on costs, including any proposed cap on the length of the submissions.

JUDGMENT in T-604-19

THIS COURT'S JUDGMENT is that:

1. Claims 1, 3 and 6 through 10 of Canadian Letters Patent No. 2,346,021 [021 Patent] are not invalid for obviousness, anticipation, insufficiency or claims broader.

2. Claims 1, 3 and 6 through 10 of the 021 Patent are valid and have been infringed by the Defendant, AgraCity Crop & Nutrition Ltd.

3. The action as against the Defendant, NewAgco Inc., is dismissed in its entirety.

4. The Defendant, AgraCity Crop & Nutrition Ltd., shall pay to the Plaintiffs $227,409 as disgorgement of their profits.

5. The Defendant, AgraCity Crop & Nutrition Ltd., shall pay to the Plaintiffs prejudgment interest in the amount of $7,296.

6. This judgment shall bear post-judgment interest at the rate of 5%.

7. The issue of costs is reserved. In the event the parties cannot agree on the issue of costs, the parties shall, within 30 days of the date of this Judgment, file a jointly-proposed timetable for the service and filing of their written submissions on costs, including any proposed cap on the length of the submissions.

"Mandy Aylen"
Judge

FEDERAL COURT

SOLICITORS OF RECORD

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