COMPETITION TRIBUNAL

REPUBLIC OF SOUTH AFRICA

Case No: 81/AM/Dec10

In re request for consideration of an intermediate merger:

Pioneer Hi-Bred International Inc	First Applicant
Pannar Seed (Pty) Ltd	Second Applicant
and	
The Competition Commission of South Africa	Respondent

In re the intermediate merger involving:

Pioneer Hi-Bred International Inc	Acquiring firm
Pannar Seed (Pty) Ltd	Target firm

Panel	:	Y Carrim (Presiding Member)
		A Wessels (Tribunal Member)
		L Reyburn (Tribunal Member)
Heard during	:	12 - 30 September 2011
Order issued on	:	14 October 2011
Reasons issued	:	9 December 2011

Reasons for Decision

Prohibition of intermediate merger

1. This case concerns an application by Pioneer Hi-Bred International Inc ("Pioneer") and Pannar Seed (Pty) Ltd ("Pannar"), the parties to an intermediate merger, for the consideration of their proposed merger in terms of section 16(1)(a) of the Competition Act, 1998 (Act No. 89 of 1998, as amended) ("the Act"). This application to the Competition

Tribunal ("Tribunal") arose from a decision of the Competition Commission ("Commission") of 07 December 2010 to prohibit the proposed merger.[1]

2. The Tribunal heard the matter from 12 to 30 September 2011 and on 14 October 2011 prohibited the proposed transaction. The reasons for this decision are set out below.

Merging parties

Pioneer

3. Pioneer, the first applicant in these consideration proceedings, is the primary acquiring firm. Pioneer is a United States based company with its headquarters in Johnston, Iowa. It is a wholly-owned subsidiary of E.I. du Pont de Nemours and Company ("DuPont"), a global science company listed on the New York Stock Exchange.

4. Pioneer is a developer and supplier of advanced plant genetics to farmers worldwide and operates in more than 70 countries, including South Africa. It has one of the largest maize germplasm pools in the world and its activities include extensive research and product development using technologies and innovations to develop hybrid maize and other commercial seeds.

5. In 1991 Pioneer established a research station in Delmas, South Africa, to begin the process of adapting its international maize germplasm for sale to South African farmers and in 1992 it began selling maize seed. Today it is involved in the breeding, production and sale of maize seed in South Africa. It has its administrative and sales headquarters in Centurion, the Delmas maize research station and a seed production plant in Rosslyn.

Pannar

6. Pannar, the second applicant in these consideration proceedings, is the primary target firm. Founded in 1958, it is a family-owned seed business based in Greytown, KwaZulu-Natal, with a number of production and research facilities in South Africa.

7. Pannar is involved in the breeding and development of improved seed varieties and sells a range of seed including maize, sunflower, grain sorghum, soybeans, dry beans and wheat. However of relevance to the competition and public interest analysis of this transaction are Pannar's activities relating to hybrid maize seed. It has a maize breeding programme dedicated to developing hybrid maize seed adapted to African conditions

[1] This merger was notified to the Commission on 15 September 2010. See Commission's Prohibition Certificate dated 07 December 2010.

and furthermore produces and sells hybrid maize seed. Pannar's principal source of revenue has always been the sale of hybrid maize seed in South Africa.

8. Outside South Africa, Pannar has seed operations in eight African countries namely Kenya, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. Pannar also sells seed in at least ten other African countries. It describes itself as "*the largest seed company in Africa and a significant competitor in the international seed industry, with highly successful operations in North and South America and Europe, as well as marketing activities which span the globe*".[2] Furthermore, according to the merging parties, Pannar has "*long been a leading seed supplier in Africa, and the Pannar brand has strong recognition throughout the continent*".[3]

9. Pannar engages in research and commercial seed operations in Argentina and the USA.

Proposed transaction

10. As stated in paragraph 1 above, the proposed transaction constitutes an intermediate merger in terms of section 11(5)(a) of the Act, which came to the Tribunal under the merger consideration provisions of the Act.

11. Given certain confidentiality claims of the merging parties we shall not discuss the exact details of the structure of the proposed deal. Of relevance to the reader is that Pioneer after the proposed transaction would hold 80% of the ordinary shares in Pannar and thus control Pannar.

Intervenors

12. The Tribunal on 19 August 2011 granted two interested third parties the right to intervene in the Tribunal proceedings and make submissions on the potential impact of the proposed merger on public interest issues. These parties are (i) The African Centre for Biosafety (ACB); and (ii) Biowatch South Africa (Biowatch). Biowatch however withdrew from the proceedings during the Tribunal hearing. ACB participated in the hearing but limited its submissions to the impact that potential maize seed price increases as a result of the proposed merger would have on small-scale commercial and subsistence farmers in South Africa. This is dealt with below under public interest.

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[2] http://www.pannar.com/ as at 17 October 2011.

[3] See merging parties' *Joint Competition Report* dated 15 September 2010, page 6.

Access to Monsanto data in terms of section 45

13. We shall deal with one disputed procedural issue in these reasons, which for practical convenience will be discussed in the last section of these reasons under the heading "**Procedural matter: Objection to Commission's evidence and application under Section 45 for access to information**" (see paragraphs 437 to 463 below).

14. The background to that procedural issue is that the merging parties requested access to Monsanto South Africa (Pty) Ltd ("Monsanto") transactional-level data that Smith, the Commission's expert economics witness (see paragraph 19 below), relied on in certain sections of his report. Monsanto, on request, made this information available to the Commission, but imposed the condition that the information could only be used in an aggregated form. Monsanto furthermore agreed to make these data available to the merging parties' expert witnesses but not to their attorneys of record. This latter restriction was imposed because Monsanto challenged the propriety of the merging parties' attorneys to act for them in these consideration proceedings. These questions are discussed in more detail in the final section of these reasons.

Witnesses

15. The merging parties, Commission and ACB called the following witnesses to give evidence at the Tribunal hearing:

Merging parties

16. The merging parties called three factual witnesses:
    - Dr John Franklin Soper ("Soper"), the Vice President of Crop Genetics Research and Development for Pioneer;
    - Mr. Deon Novem Van Rooyen ("Van Rooyen"), the Managing Director of Pannar; and
    - Mr. Paul Eichhorn Schickler, III, ("Schickler"), the President of Pioneer.

17. As expert witnesses the merging parties called:
    - Mr. James Hodge ("Hodge"). Hodge, from the Genesis economics consultancy, in particular dealt with market definition, the competitive dynamics of the maize seed sector and the merging parties' claimed dynamic efficiencies; and
    - Dr. Keith Waehrer ("Waehrer"). Waehrer, from Bates White Economic Consulting, in particular dealt with the merger simulation modelling, i.e. the unilateral price effects analysis, as well as with potential coordinated effects.

Commission

18. Two factual witnesses gave testimony on behalf of the Commission namely:
    - Mr. Larry William Robertson ("Robertson"), the Global Project Success Leader for Corn of Dow AgroSciences LLC ("DAS")[4]; and
    - Mr. Jan Martin Suter ("Suter"), the head of the Africa, Middle East business of the Syngenta group of companies ("Syngenta")[5].

19. Mr. Patrick Smith ("Smith") from NERA Economic Consulting testified as an economics expert for the Commission.

ACB

20. ACB called as its witness Dr. Maxwell Mudhara ("Mudhara"), an agricultural economist.

Background to maize seed sector

21. To contextualise the merging parties' rationale for the proposed deal and the disputes on the competition and public interest issues in this case we shall below first describe certain dynamics of the maize seed industry in general and in particular provide background information to the characteristics of the South African maize seed sector. These dynamics and characteristics include maize farmers' requirements of maize seed, their (lack of) ability to influence prices, firms' margins on maize seed, as well as the science of maize seed breeding and technology and its development over time.

Maize farmers' needs

22. Farmers generally, given the specific agronomic and environmental conditions in which they farm, demand maize seed that meets a particular suite of characteristics or traits designed to maximize crop quality and yields. For example, farmers who farm in the drier or non-irrigated areas of South Africa tend to place a high value on maize seed bred to be relatively resistant to drought; and farmers who grow maize in areas prone to insect infestation seek seed bred to be resistant to insects native to that area. Schickler summarised the needs of maize farmers as follows: "*[w]ith all of the difficult dynamics farmers face, from the weather to volatile commodity markets, their seeds need to be of*

[4] DAS, based in the USA, is a wholly owned subsidiary of The Dow Chemical Company. DAS's primary business is the provision of agrochemical and biotechnology solutions globally.
[5] Syngenta is a global agribusiness company headquartered in Basel, Switzerland.

consistent, steadily improving quality, priced competitively with respect to the value they offer, and carefully designed to address a farmer's specific needs".[6]

23. Maize farmers therefore desire maize seed with varying combinations of a number of key characteristics, including:

(i) Yield

Yield, a measure of output, refers to the overall weight of maize harvested from a given acreage. It is affected by a wide range of environmental factors and their interaction with the genetic characteristics of the variety of maize being grown.

(ii) Maturity

Maturity refers to the length of time required from planting the seed to physiological maturity, which is the point at which the grain is fully developed and can be harvested and artificially dried or left to dry in the field.

A distinction can be drawn between so-called (a) earlier maturity crops; and (b) later maturity crops. Earlier maturity crops generally dry faster and can be harvested sooner. Later maturity maize crops are slower to dry and can thus be harvested later.

In this merger context the issue of maize maturity is particularly relevant to product market delineation and will be dealt with in detail below.

(iii) Disease and pest resistance

One of the key factors influencing overall yield is a maize plant's natural ability to resist (a) disease, for example a fungus or rust; and (b) pests that are prevalent in the area that the crop is grown, for example corn borer. When a plant is attacked by a pest or disease the plant's overall growth can be stunted and the quantum of grain harvested from it is then substantially reduced or the grain is of poor quality. Therefore, to the extent that a plant can fight off diseases and pests, or can do so while diverting less resources away from the production of the grain, such resistance will ensure higher yields.

(iv) Drought tolerance

Drought tolerance, simply put, is a plant's ability to withstand sub-optimal amounts of soil moisture whilst minimizing yield reduction. Drought can take place at many points in the

[6] Schickler witness statement, paragraph 48.

maize growing season and can last for differing lengths of time. Therefore drought tolerance allows a maize plant to survive under a variety of moisture conditions.

(v) Other agronomic characteristics

Maize also has other characteristics that vary according to genetic make-up and that may affect yield, including:

(a) standability - refers to the maize plant's ability to stay upright until the time of harvest;

(b) proflicacy - refers to the capability of a maize plant to produce more than one ear (cob);

(c) propensity to form tillers - refers to side shoots (not favoured by all farmers but can in some cases form their own ears and assist with extending the pollination period and the quantity of available pollen);

(d) grain hardness - an indicator of quality that can affect the ultimate price paid for a given quantity of maize; and

(e) plant type - important with commercial farmers preferring for example less leaf material and uniform ear heights to facilitate mechanical harvesting.

24. The common thread is that all farmers demand maize seed that performs well given their specific environmental challenges, diseases and pest pressures.

Price elasticity

25. The evidence in this case is that commercial maize farmers in South Africa in general are not price-sensitive in regard to maize seed and that they also have no buyer power.[7] Grain SA in this regard in its submission to the Commission stated *"[f]armers find it difficult to negotiate lower prices for seed because they are generally price takers"*.[8] The relative price inelasticity of the market(s) under consideration in this case is confirmed by Hodge: *"[i]n our analysis we assume a linear demand function. It is common cause that seed is price inelastic ..."*[9] and also by Waehrer *"[g]iven that demand for maize seed is relatively*

[7] Smith Presentation: Exhibit 5, slide 24.Transcript: Smith pages 490 and 492; Transcript: Waehrer page 1878.
[8] Paragraph 8 of Grain SA's submission to Commission; Commission record, page 703.
[9] Expert report, paragraph 147.2.

inelastic ...".[10] Different considerations apply to subsistence farmers (see paragraphs 395 to 425 below).

Margins

26. From a supply-side perspective the evidence is that the gross margins of the large players in the South African maize seed sector, relatively speaking, are very high i.e. in the order of [>30]%.[11] This evidence conforms to the standard intuition that high margins indicate low customer price sensitivity.

Commercial farming of hybrids in South Africa

27. According to Van Rooyen, South Africa over the past decade has become one of the more sophisticated and productive maize growing regions of the world. South African commercial farmers readily adopt new technology and the leading farmers are very much on par with those in the rest of the world; they use the same sophisticated practices and technologies, such as precision planting, GPS mapping of fields and computer models to determine and optimize input requirements and their application.

28. In relation to the maize seed type favoured by South African farmers Van Rooyen indicated that (i) more than 95% of maize grown in South Africa today is grown from so-called "hybrid" seed; and (ii) hybrid maize accounts for all South Africa's commercial maize farming. Hybrids refer to cross-bred maize plants that are produced from the cross-breeding of two "pure" maize lines known as "inbred" or "parent" lines. This is explained in more detail in paragraph 31 below.

Small-scale commercial and subsistence farmers

29. In addition to the above-mentioned commercial maize farmers, small-scale commercial and subsistence maize farmers collectively make an important contribution to meeting South Africa's agricultural needs. These maize farmers make use of both hybrid maize seed and so-called "open pollinated varieties" of maize seed (OPVs). The latter seeds result from the "open" pollination of populations of maize plants.

30. We specifically deal with small-scale commercial and subsistence maize farmers below under the public interest considerations (see paragraphs 392 to 434).

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[10] Expert report, paragraph 16.

[11] Smith Presentation: Exhibit 5, slide 4. Transcript: Smith, page 381.

Conventional maize breeding

31. Conventional maize breeding is the traditional method by which breeders have manipulated the natural genetic makeup of maize plants to produce successive generations of plants with desirable characteristics. The breeders discovered that they could improve plants by crossing an inbred maize line (one in which both copies of the plant's DNA were essentially alike) with another inbred line to produce a hybrid plant that combined desirable attributes from both parent lines. Maize crop by nature exhibits heterosis which means that the maize seed produced from the cross-breeding of the two inbred or parent lines almost always outperforms the two parents from which it descends. This phenomenon is also known as "hybrid vigor" and almost all maize seed sold commercially today is the product of hybridization. Pioneer was the first company in the world to introduce a commercial hybrid maize seed.

32. In simplified terms conventional breeding today involves the following processes: (i) isolating plants with promising attributes and turning them into pure inbreds through generations of self-pollination; (ii) selecting inbred lines to breed together or "cross" to form hybrids in hopes of producing a hybrid that combines the best of both; and (iii) growing and testing the resulting hybrids to see whether they are promising enough to advance towards maize seed commercialization.

33. Both the inbreeding and hybrid breeding processes in conventional breeding are a matter of trial and error in which hundreds or thousands of plants are bred and evaluated to find the few that become commercial seed products many years later. All of this means that conventional breeding is both a very time-consuming and costly exercise. Soper indicated that, when using traditional methods, it takes approximately four to five years to develop inbreds and then another three to four years to cross the inbreds to create hybrids and sufficiently evaluate the results. It would thus take seven to nine generations or growing seasons to develop a commercial maize seed.[12]

Germplasm

34. Hybrid breeding puts a premium on maize seed producers having access to a diverse pool of maize inbreds from which to cross-breed the hybrid varieties. The industry came to refer to these inbreds as "germplasm", also referred to as "genetics". Germplasm contains the genetic code that expresses the different characteristics or traits of the maize plant. Today

[12] Soper witness statement, paragraph 10.

the term germplasm refers to the genetic pool of seed material from which maize varieties may be bred or developed.

35. Pannar, Pioneer and Monsanto all have proprietary locally-adapted germplasm i.e. germplasm specifically adapted to South African conditions.

36. Monsanto is the source of almost all germplasm licensed to the small independent seed companies in South Africa (also see paragraphs 38, 52, 85.1, 147 and 167 below in relation to these small independent firms).[13]

Commercialisation of seed

37. The breeding of new maize hybrids must be distinguished from the mere production and distribution of commercial hybrid maize seed. These breeding and commercialisation activities are in a vertical relationship with the breeding of maize hybrids as the upstream activity and the commercialisation of hybrid seed as the downstream activity. The downstream commercialisation of seed is less specialized than the upstream breeding activity and requires far lower investment. Commercialisation of seed can generally be conducted by firms that license or contract with breeders to obtain parent lines or even the finished hybrids. The production and distribution of licensed hybrid maize seed varieties in particular is a much simpler and far less resource-intensive process than the maize breeding process.

38. The only players with noteworthy maize breeding capabilities in South Africa are Pioneer, Pannar and Monsanto. There are also a number of smaller seed companies in South Africa that currently produce and distribute licensed maize seed hybrids and/or OPVs. Firms such as Advance Seed and Agricol Seed only produce and distribute seed and are not active in the breeding of maize hybrids.

39. A mix of firms are active in South Africa within the various elements of commercialisation, with the seed companies outsourcing certain activities to third parties:

    (i) Seed can be produced by the seed companies or its production can be outsourced to third party farmers on the seed company's behalf, or there can be a mix of these two methods. In the latter case, the seed companies provide the farmers with the parent seeds from which the commercial seeds are produced. Pannar for example

[13] Schickler witness statement, paragraph 32.

outsources a certain amount of its commercial maize seed production to third-party farmers.

(ii) The hybrid seed is then cleaned, sorted, chemically treated and bagged in a processing plant. Although these plants are often owned by the seed companies, third-party seed processing plants are also used. These plants are largely owned by the larger seed companies in South Africa and former agricultural cooperatives, most of which are now public companies.

(iii) The hybrid seed is either sold directly to the farmer via the seed companies' sales representatives or distributed through agents or dealers such as the former agricultural cooperatives and large agri-businesses like Senwes and Afgri.

Modern breeding methods

40. Maize seed breeding has become a highly sophisticated and technologically advanced field of activity. Modern hybrid breeding processes are aimed at developing high performance hybrid varieties which meet the demands of farmers under a range of growing conditions. This essentially involves refining the genetic makeup of parent inbred lines and hybridizing these lines to derive a plant with desirable features that are either not found, or are found inconsistently, in the natural state of a plant population.

41. From approximately the mid-1990s the conventional breeding methods were enhanced by two types of innovations in the global maize seed industry namely the (i) introduction and increased use of so-called "advanced breeding technologies"; and (ii) introduction and adoption of genetically modified or "biotech" traits. We discuss each of these developments in turn below.

Advanced breeding technologies

42. Advanced breeding technologies are technological innovations designed to improve the speed, efficiency and precision of maize hybrid breeding. A variety of biological tools are used, often in combination, to identify with more precision the exact genes possessed in parental lines that a breeder wants to have expressed in a finished hybrid, as well as the combinations of inbreds most likely to be successful. This increases the speed and lowers the cost involved in developing such parental lines.

43. The main types of advanced breeding technologies are:

(i) Doubled haploid technology

Haploid doubling is a technology that uses cross-breeding techniques and a chemical treatment to create a perfect inbred in a single generation. The use of doubled haploid technology eliminates the generations of carefully controlled self-pollination used to create genetic purity in inbred lines, while simultaneously improving the level of purity achieved. By creating many more high-quality inbreds the breeder has the ability to evaluate many more hybrids created with those inbreds. The key benefits of doubled haploid technology thus are speed and reliability.

(ii) Marker assisted selection (MAS)

MAS is a technology that evaluates the genome of a given maize organism and identifies the location of desirable genes within that genome. MAS uses DNA sequences or "markers" that are commonly found near desirable genes in a maize genome. These sequences are called markers because they do not cause the attributes themselves, but are usually found nearby genes that do. Once a marker has been identified, scientists use sophisticated gene profiling techniques to look for the marker in other genetic material within a germplasm pool.

MAS helps breeders focus on those inbred crosses that are most likely to bring the most beneficial combination of genes to the resulting hybrid. By pre-screening experimental lines for markers and selecting germplasm that includes those markers associated with a specific trait, breeders can increase the accuracy of trait selection and dramatically improve the genetic profile of lines selected to develop a hybrid with the desired genes.

44. Other technologies include laser-assisted seed selection (LASS)[14], en-class technology[15] and precision phenotyping[16].

45. These advanced breeding technologies are complementary and are used together. For example, rapid creation of pure inbred lines using doubled haploids is followed by immediate genetic profiling using MAS, which allows breeders to identify the best inbred parents for hybrid combination.

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[14] LASS uses a special laser to slice off a tiny piece of a maize kernel, allowing that piece to be genetically tested while preserving the remainder of the kernel to be grown and reproduced should a breeder later become interested in the genetics as analyzed.

[15] En-class technology helps predict the specific environmental and weather conditions likely to prevail over time at a given location and the likely response of a maize plant to those conditions, allowing the breeder efficiently to identify the genetics best suited to a geographic location.

[16] Precision phenotyping describes a suite of innovations to the plant testing process that generate richer, more detailed data on plant characteristics to support breeders and help them make the most precise and efficient decisions about what genetics will be most successful in any given product.

46. The advanced breeding technologies generate large quantities of data and a bioinformatics[17] system ties all of these breeding technologies together and makes the information learned from these techniques available to breeders.

GM traits

47. On the supply side, genetic modification (GM) entails the additional step of introgressing relevant GM traits. Biotech traits are genes that are derived from non-related plant or animal organisms and inserted into maize seed genetics in order to confer certain beneficial characteristics. The traited maize hybrids can contain the individual biotech traits in isolation or a "stacked" combination of traits.[18]

48. It is common cause that GM traits have been adopted rapidly in South Africa because they provide significant economic benefits to maize farmers. The biotech traits currently being sold in South Africa confer resistance to maize stalk borer and herbicides that contain glyphosate. These traits were approved for use in South Africa from 1996 onward. Van Rooyen estimated that 75% of maize hybrids sold in South Africa today contain biotech traits.[19]

49. Seed material with GM traits is available either directly from the GM developer, as in the case of Monsanto, or through licensees of a GM developer, as in the case of Pioneer and Pannar in South Africa, both of which have licences granted by Monsanto. Hodge confirmed that Monsanto currently supplies all the biotech traits commercially sold in South Africa.[20] Syngenta has however also commenced the registration of biotech traits in South Africa. This will be discussed in more detail under the relevant counterfactual (see paragraphs 239 to 241, 259 and 260 below).

50. It is common cause that the discovery, development and commercialisation of biotech traits require very large investment in resources and regulatory processes.[21] The licensing of GM traits on the other hand results in an additional incremental cost associated with the licence fee, which is a form of royalty for the use of intellectual property.

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[17] The science of managing the information associated with biotechnology.

[18] According to Pioneer's submissions, GM traits fall into one of four categories: B (Bt corn, including "Yieldgard" variety), R (Roudup Ready), BR (stacked B and R traits) and non-trailed.

[19] Van Rooyen witness statement, paragraph 37.

[20] See, for example, Genesis report, paragraph 79.1.

[21] The process involves registration under a statute which governs the importation and use of genetically modified organisms and registration confers an IP right together with the right to start commercialising the GM organism.

Summary of competition and public interest issues

51. All the parties agree that the only area of potential competitive and public interest concern arising from the proposed merger is the breeding, production and sale in South Africa of maize seeds. We therefore in these reasons only focus on this area.

52. The background to the structure of the hybrid maize seed sector in South Africa and the structural effect of the proposed transaction is the following: the only significant players in this sector are Monsanto, Pioneer and Pannar. Pioneer and Pannar respectively are the second and third largest players. Monsanto is the overall largest player. There are also a number of very small independent seed companies that sell primarily licensed hybrid maize seed.

53. Regardless of the exact delineation of the relevant South African hybrid maize seed product market(s), the proposed deal would bring a significant and permanent change to the market structure, reducing the number of competitors of significant size in the market(s) from three to two players. Thus this deal is a so-called "three-to-two" merger.

54. Whilst the exact market shares of Pioneer, Pannar and Monsanto differ depending on the precise market share measure used, in all cases: (i) the national hybrid maize seed market(s) is/are highly concentrated with Pioneer, Pannar and Monsanto collectively accounting for approximately 95% of any potential relevant market; and (ii) pursuant to this "three-to-two" merger the already high levels of concentration would further significantly increase.

55. The merging parties and the Commission were of opposing views in relation to a diverse number of competition-related issues. In broad terms these disputes relate to:

- certain market delineation aspects: although much of the market delineation is common cause, the respective experts in particular disagreed on whether there is one broad relevant product market for all maize hybrids or a separate relevant product market for so-called "*ultra-early maturing hybrids*"[22] (see market delineation below);
- the relevant counterfactual absent the proposed merger in relation to Pannar's future competitive position;
- the degree of closeness of competition between Pioneer and Pannar;
- in relation to the likely unilateral competitive effects, the extent of the likely price increases as a result of the proposed merger, more specifically the appropriate

[22] See Genesis report, *inter alia* paragraph 6.1.

diversion ratios, GM trait fee and penetration rate to use in the unilateral effects modelling;

- in relation to the merging parties' claimed efficiency gains, the magnitude, likelihood and timing thereof and their merger specificity; and
- the extent to which the proposed deal is likely to result in concerns about post-merger coordination between the merged entity and Monsanto as the only two remaining players of significant size in the relevant market(s).

56. More specifically the merging parties in broad terms argued that:
    - Pannar and Pioneer are not each other's closest competitors since Pannar is a closer competitor to Monsanto than it is to Pioneer;
    - the proposed transaction is unlikely to substantially raise barriers to entry;
    - Pannar is declining in competitive significance and its continued decline remains the most likely counterfactual to the proposed merger;
    - Pannar in particular lacks advanced breeding technologies and competitive "ultra-early" genetics and is increasingly reliant on Monsanto; and
    - the merger does not raise significant concerns in relation to unilateral price effects or coordinated effects.

57. The merging parties furthermore claimed that the proposed merger holds significant pro-competitive or efficiency benefits and would create a stronger maize seed competitor which is critical to effective competition given the increasing strength of Monsanto in the market. They argued that Pioneer and Pannar have complementary germplasm pools and that Pioneer has the advanced breeding technologies that Pannar lacks in its breeding activities. According to the merging parties the dynamic efficiencies resulting from the deal are likely, substantial and merger-specific and would be of benefit to maize farmers and consumers alike.

58. The Commission in broad terms argued that:
    - the merging parties are close competitors;
    - the proposed merger will raise barriers to entry in certain key capabilities including the availability of locally-adapted germplasm;
    - Pannar's decline in the market is not imminent and the relevant counterfactual is not a continued weakening of Pannar's competitive position;
    - the proposed merger will lead to significant unilateral price increases;

- the merging parties' claimed efficiency benefits are not likely; the Commission claimed that the merging parties overstated these benefits which furthermore, at least in part, are not merger-specific; and
- the proposed merger would increase the risk of post-merger coordination between the merged entity and Monsanto.

59. From a public interest perspective, ACB argued that a small but significant increase in maize seed prices as a result of the proposed deal would have a detrimental effect on small-scale commercial and subsistence farmers in South Africa. The merging parties contested this.

Rationale for transaction

60. According to the merging parties the proposed transaction embodies Pioneer's commitment to increasing its investment in South Africa and Africa.

61. They further stated that Pioneer will enhance the value and unlock the potential of Pannar's proprietary germplasm and other assets in South Africa and Sub-Saharan Africa by combining the two companies' complementary germplasm resources and applying advanced breeding technologies to the combined germplasm assets.[23] This they claim will result in significantly improved new maize seed products that will benefit South African and other African farmers.

62. Another benefit of the proposed transaction according to Pioneer is that it will provide Pannar with access to biotech traits on more favourable terms than at present, allowing the combined firm to significantly lower costs for Pannar seed.[24] This would come about because Pannar as a subsidiary of Pioneer would have access to Monsanto's GM traits at the licence fee payable by Pioneer, which is [...] lower than the rate stipulated by Monsanto for Pannar.

63. From a Pannar perspective the rationale for the transaction according to Van Rooyen is the following: *"Pannar shareholders agreed that partnering with Pioneer would be in the best long-term interests of the business, its employees, shareholders and South African farmers as well as farmers in Africa and elsewhere. Pannar sought a transaction partner that would offer continuity and growth for the brand, the business and our employees,*

[23] Merging parties' *Joint Competition Report*, page 15.
[24] Schickler witness statement, paragraph 35.

complementary germplasm, strong advanced breeding technology capabilities and biotech trait development and access".[25]

64. Below we focus in more depth on two key aspects of the merging parties' rationale for the proposed deal namely: (i) the value of Pannar's locally-adapted maize germplasm, which is not only stressed by the merging parties, but also by third parties, as well as its complementarity with Pioneer's germplasm; and (ii) the merging parties' African growth strategy in regard to maize seed, which seemingly is also a strategy that both Syngenta and DAS wish to pursue.

Pannar's germplasm pool and other features

65. Soper and Schickler both emphasised that Pannar has developed a highly valuable pool of maize germplasm adapted specifically for South African growing conditions.[26] Soper described Pannar's germplasm pool as "*unique*". According to Soper "*Pannar has bred maize in South Africa for fifty years, which means that its breeding efforts have the benefit of having taken place in the real-life "laboratory" of the actual growing conditions farmers encounter in South Africa*".[27]

66. The reasons for this "*uniqueness*" of Pannar's germplasm include the fact that the South African environment exerts significantly more disease pressure on maize than do more temperate climates. As a result Pannar's maize germplasm has historically been bred to confer resistance to the diseases and pests most commonly found in South Africa and some other countries in Africa (particularly leaf and stalk diseases). Likewise, South Africa traditionally had a longer growing season compared to some other parts of the world and therefore Pannar's maize germplasm typically matures relatively slowly.[28] All other things being equal, a longer growing season means higher yields, and the long growing season encountered in many of South Africa's maize growing regions has meant that Pannar's maize germplasm is more suited for late maturities. Pannar's germplasm pool further exhibits strong proflicacy (see paragraph 23 above).[29]

67. The key strengths of Pioneer's germplasm, on the other hand, are high yield, early maturity and strong standability. The background to this is that Pioneer has focused on serving maize farmers in the USA, many of whom grow maize on the country's northern plains. These farmers face hot, short summers of unpredictable timing and duration and they therefore put

[25] Van Rooyen witness statement, paragraph 57.
[26] See Schickler witness statement, paragraph 34.
[27] Soper witness statement, paragraph 36.
[28] Soper witness statement, paragraph 36.
[29] Schickler witness statement, paragraph 38.

a premium on maize that goes from seed to harvest as quickly as possible while still producing high yield. The result is that Pioneer has developed over time a pool of germplasm that, while diverse, is heavily weighted toward early and ultra-early maturities.[30]

68. The complementarities between the Pioneer and Pannar germplasm pools are evident from the above.[31]

69. Third parties have similarly stressed the value of Pannar's locally-adapted germplasm, but also more than that. Suter based Syngenta's potential interest in Pannar on "*three pillars that would make Pannar a very attractive partnership*": (i) its strong germplasm base; (ii) the strength of the Pannar brand in the South African market given that the brand "*is recognised throughout the farming community as a reliable trustable brand*" (also see paragraphs 8 and 63 above, as well as paragraphs 179 to 184 below); and (iii) the integrated team skills that Pannar offers (also see paragraphs 163 and 185 to 187 below).[32]

African growth strategy

70. From a broader African perspective, Schickler articulated the reason for the proposed transaction as follows: "*the merger will increase Pioneer's exposure to, and presence in, Africa, which is the reason we are involved in this transaction*".[33]

71. He made it clear that this transaction is the key to Pioneer's strategy to expand its operations in Africa and stated "*Pioneer hopes to continue to increase its investment in South Africa and in Africa in the future, and the proposed transaction with Pannar is key to that strategy*".[34] He further stated that "*Pioneer seeks, through this transaction, to continue and broaden its efforts to improve agriculture in the region, and ultimately to increase its exposure to, and overall economic investment in, South Africa and in Africa*"[35]; and went on to say that "*Pioneer is heavily committed to the development of South African agriculture and improving the food supply for Africa, and is engaged in a number of initiatives designed to promote these goals*"[36]; and "*Pioneer sees Africa as a critically*

[30] Schickler witness statement, paragraph 37.
[31] See, for example, Schickler's witness statement, paragraph 36.
[32] Transcript pages 205 and 206.
[33] Schickler witness statement, paragraph 46.
[34] Schickler witness statement, paragraph 23.
[35] Schickler witness statement, paragraph 9.
[36] Schickler witness statement, paragraph 14.

important area to invest in agricultural resources given the scope of the continent's need for additional food production ...".[37]

72. This rationale was confirmed by Van Rooyen: "... *the proposed transaction is grounded on the rationale of expanding the parties' operations throughout, and growing the business in, Africa*".[38]

73. However, it appears that the other large international seed companies, i.e. DAS and Syngenta, also have aspirations in regard to maize seed in Africa, via South Africa:

74. Robertson confirmed that DAS is currently present in every single geographic area except Africa[39] and articulated DAS's strategy in regard to Africa as follows: "*DAS believes that South Africa, as a major and sophisticated global market for seeds, is a highly compelling point of entry into Africa*".[40] He testified that the South African maize seed market "*is quite a sophisticated market in terms of the Germplasm technology that's available here ... it is a very modernised, a very high production area in terms of corn production ... it also affords the potential for the future to establish a base in Africa and have that base utilised for further expansion of the corn business into other areas of Africa*".[41] He also stated that "*DAS would strongly prefer that entry into South Africa be in partnership with a local firm that carries key core seed capabilities, including breeding, testing, production and supply chain, locally adopted genetics, and an established sales and distribution channel*".[42]

75. Suter in similar tones testified that "*the seed market in South Africa, specifically the corn seed market is so significant that it is a market in which any seed player, any corn seed player would wish to play*" and "*[i]t is the most technified market in Africa and as such is a stepping stone into the further expansion of our operations in seeds, corn seeds in Africa*".[43]

76. Thus from the submissions of the merging parties, DAS and Syngenta it is clear that all of these international seed firms wish to either establish or increase maize seed activity on the African continent and that Pannar would be a key component to such activity.

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[37] Schickler witness statement, paragraph 15.
[38] Van Rooyen witness statement, paragraph 83.
[39] Transcript page 171.
[40] Robertson witness statement, paragraph 11.
[41] Transcript page 86.
[42] Robertson witness statement, paragraph 12.
[43] Transcript page 192.

Relevant product markets

Overlap and scope

77. The merging parties' activities in South Africa overlap in the area of soya bean and sunflower seeds, as well as in relation to maize with regards to (i) the breeding and development of new hybrid varieties of maize; and (ii) the production, processing and distribution of commercial hybrid maize seed.

78. The expert witnesses of the merging parties and Commission agreed that maize seed is distinct from other crops and that no competition concerns arise as a result of the proposed transaction with respect to products other than hybrid maize seed.[44]

79. Furthermore, the experts agreed that hybrid maize seed and OPVs constitute separate relevant product markets[45] (see paragraphs 390 and 391 below in relation to OPVs).

Vertical relationships between players

80. As stated in paragraph 49 above, both Pioneer and Pannar in South Africa license GM traits from Monsanto which they then use as an input into their hybrid maize activities.

81. It is common cause that GM trait development is a distinct area of activity constituting a separate relevant product market.[46]

82. There is no overlap between the merging parties' activities in relation to GM trait development. According to the merging parties' submissions Pannar has attempted to develop GM traits in the past, but has not commercialized or registered a single GM trait for use in South Africa and furthermore does not have the capabilities to develop a GM trait within [...] from now.[47] Pioneer has also not obtained a registration for any GM trait for use in South Africa and furthermore is not anticipated to have any GM traits commercially available for [...].[48]

83. Accordingly, from a market delineation perspective there is no need to further consider the functional market for GM trait development. However, of particular relevance in this case are access to and the terms of access to GM traits, specifically in relation to Pannar. This

[44] See Exhibit 13, paragraph 1.
[45] See Exhibit 13, paragraph 3.
[46] Genesis report, paragraph 8.4.
[47] Merging parties' *Joint Competition Report*, pages 30 to 32.
[48] Merging parties' *Joint Competition Report*, page 31.

will be discussed under the relevant counterfactual, as well as under the merging parties' claimed efficiencies.

84. Pannar also licenses germplasm from Monsanto in the form of inbred parental lines, which can be crossed with Pannar's germplasm or other licensed inbred parental lines, which are an input into Pannar's hybrid maize breeding. In addition Pannar licenses [...] which is an input into Pannar's production and distribution activity.

Agreement between experts

85. Ultimately there was considerable common ground between the merging parties' and Commission's experts in respect of the delineation of the relevant product and geographic markets. The key aspects of agreement included:

    85.1. Separate functional markets for the (i) breeding; and (ii) commercialisation (production and distribution) of hybrid maize seed.[49]

    There are recognized differences in the capabilities required at each of these stages in the supply chain. No perfect integration exists between these stages but rather a degree of trade between independent entities active at the breeding and development stages. Furthermore, a number of small players are active only at the seed distribution stage.

    85.2. No separate relevant products markets are delineated based on maize hybrid colour[50] i.e. white and yellow maize.[51] White maize is primarily used for milling to make a product for human consumption while yellow maize is used primarily as an animal feed.

    85.3. The scope of the relevant geographic market(s) is national, both at the levels of breeding and commercialisation.[52]

86. We do not deal in these reasons with any evidence relating to these agreed areas.

87. In relation to GM and non-GM hybrids, the merging parties' and Commission's expert witnesses disagreed on the extent of differentiation between these two types of hybrids, but their competition analyses proceeded on the basis of a single relevant product market

[49] See Exhibit 13, paragraph 2.1. This approach corresponds with case precedent in the EU. See, for example, the *Syngenta/Monsanto's Sunflower Seed Business* merger (2010); case no. COMP/M.5675.
[50] Relatively more yellow maize is produced in the irrigated region of the Northern Cape, as well as the Western and Eastern Cape, and relatively more white maize is produced in the Free State, the North West and Gauteng.
[51] Exhibit 13, paragraph 2.2.
[52] Exhibit 13, paragraph 2.3.

including both GM and non-GM maize hybrids.[53] Hodge in this regard stated that "*[p]ossible delineations according to GM vs non-GM and white vs yellow maize seed are not critical to analysis*"[54] and "*it is not necessary for this analysis to definitively determine whether these variations constitute a separate market as all major players supply across all these types of maize seeds (although to varying extents) and narrower markets would not alter the conclusions of the analysis*".[55] Although Smith analysed the likely price effects of the proposed deal from a GM vs non-GM market delineation dimension, he ultimately conceded that he did "*not have sufficient data to conclude that GM maize should necessarily constitute a separate market*".[56]

88. We confine our competition effects analysis to the merging parties' view that no distinction need to be drawn in the context of market delineation between GM and non-GM hybrids, but for a better understanding of the market dynamics and merging parties' claimed efficiencies we note the following in regard to the prices, demand and supply of GM and non-GM hybrids:

89. The merging parties' list prices over a four-year period indicate significant price differences between GM and non-GM hybrid maize seed.[57]

90. In terms of demand trends, within the past two years the prevalence of GM traited maize in South Africa grew from 57% to 75%, and within the past five years from 29% to 75%. The planting season 2010/2011 will be the first in which a GM trait used in South Africa will be off patent, which may lead to additional changes in the market.[58]

91. From a supply-side perspective the evidence shows that both Pioneer and Pannar, both in respect of maize breeding and the commercialisation of maize seed, have shifted their activities towards GM maize varieties over the past 10 years. In other words by accessing GM traits from Monsanto, each of Pioneer and Pannar have actively bred, produced and distributed increasing proportions of GM maize seed. As stated in paragraph 87 above, Hodge stressed that all three major maize seed firms in South Africa supply both types of seed.

92. Another important issue to note is that although both Pioneer and Pannar license biotech traits from Monsanto, there are [...] differences in the terms of the Pannar vs the Pioneer

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[53] Exhibit 13, paragraph 4.
[54] Genesis report, paragraph 8.3.
[55] Genesis report, paragraph 8.3.
[56] Smith report, paragraph 98.
[57] 2007/08, 2008/09, 2009/10 and 2010/11; see Smith's expert report, paragraphs 58 to 64.
[58] Smith report, paragraph 128.

licence. Pioneer has more favourable terms, including a [...] lower price, for licensing of biotech traits from Monsanto. The merging parties claimed that the lower trait fee of Pioneer is a pro-competitive benefit of the proposed deal (also see paragraph 62 above).

Disputed issue between experts

93. The core disagreement between the merging parties' and Commission's expert witnesses in relation to market delineation is whether or not the so-called "*ultra-early hybrids*" (see paragraphs 102 to 107 below) constitute a separate relevant product market.[59] We focus on this aspect below.

94. This dispute is of particular relevance since it significantly affects the market shares of the merging parties that are used in the experts' unilateral price effects modelling and thus also the predicted price increases as a result of the merger. To illustrate the significance of this: if the "*Irrigation Market*" as defined by the merging parties is excluded from the application of Waehrer's unilateral price effects model, the quantified average price increase as a result of the proposed merger is reduced from 12,2% to 8,9%.

Background to disputed issue

95. Van Rooyen explained that in South Africa historically the later maturity maize hybrids generated higher yields, and thus farmers accepted the risk of a later harvest in exchange for the additional revenue generated by higher yielding crops. However, the earlier maturity hybrids introduced in South Africa in the past decade often are more competitive in terms of yield. He further explained that farmers can often reduce the risk of drought and other adverse environmental conditions, such as early frost, by planting a hybrid that will effectively use a short rainy period to mature and by harvesting the maize crop earlier in the season.[60]

96. Van Rooyen also stated that the earlier maturity hybrids "*have become increasingly used by farmers throughout the country*"[61] and "*also in other areas of South Africa, farmers are increasingly shifting toward high-yielding earlier maturity varieties ...*".[62]

97. Hodge confirmed that "*[o]utside of the Irrigated Region farmers continue to shift toward earlier maturity varieties that offer farmers opportunities for early harvest, thus reduce risks*

[59] See Exhibit 13, paragraph 5; Genesis report, paragraph 20.
[60] Van Rooyen witness statement, paragraph 36.
[61] Van Rooyen witness statement, paragraph 36.
[62] Van Rooyen witness statement, paragraph 58.

and improve their profitability".[63] He also pointed out that this view of the market is shared by Imiyezo Agri Development[64] which in its submission to the Commission stated: "*It would seem that farmers are moving to quicker maturing varieties to ensure the production window and reduce the problem of early frosts and erratic rainfall*".[65]

98. Hodge went on to point out that the shift to earlier maturing hybrids in the non-irrigated regions is evident in the merging parties' sales data. The proportion of early varieties sold by Pioneer not associated with the Irrigated Region (see paragraph 104 below) has increased by [0-10]% from 2009/10 to 2010/11; Pannar's sales of white maize related to earlier maturing hybrids also increased by [0-10]% from 2009/10 to 2010/11.[66]

99. Different classes of earlier maturity hybrids exist (also see paragraph 23 above). The early-late varieties are sold primarily in the Eastern (humid) and Western (hot and dry) regions of South Africa, whilst the ultra-early maize varieties are primarily sold along the banks of the Vaal and Orange rivers in the Northern Cape, but also in Mpumalanga, as discussed below.

100. The use of the ultra-early maturity maize has a special feature since it ensures that the crop reaches maturity rapidly so as to allow for the possibility of planting a second crop in a given cycle. This is known as "double-cropping". The most common combination of double-cropping in South Africa is the planting of maize (summer) and wheat (winter).

Merging parties' view

101. The merging parties initially advanced the contention that the "*ultra-early hybrids*" constitute a separate relevant product market. However they later adopted different definitions of the relevant market across their various submissions and supporting analyses. In fact they advanced three successive definitions during the Tribunal hearing, as explained below.

Parties' first definition: ultra-early hybrids

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[63] Genesis report, paragraph 41.
[64] Imiyezo Agri Development submission to the Commission, dated 13 October 2010, paragraph 9; page 715 of the Commission's record.
[65] Genesis report, paragraph 41.
[66] Genesis report, paragraph 42.

102. In opening statements counsel for the merging parties described the separate relevant product market that they defined as follows: "*[s]o, we say, and this is our fundamental point of difference with the Commission on the market definition, is that there is no substitute for a farmer that wishes to engage in double cropping to look to seeds that are just early maturation or later forms of maturation, because it would entirely compromise the ability to engage in double cropping and therefore the irrigated region, the use of ultra-early's is a market unto itself*".[67]

103. The merging parties' first delineation of this potential market is found in Hodge's expert reports. He defined a separate product market for the "*ultra-early maturity seed varieties sold to customers primarily in the Irrigated Regions ...*".[68] Hodge stated that these ultra-early maturing maize hybrids are "*... generally considered to have a CRM[69] of 115 or less ...*")[70]; and further that "*[a]lthough this delineation is founded on the distinctiveness of ultra-early maturity maize hybrids, it also has a strong geographic element as the demand for these varieties is strongly rooted in the Irrigated Region*".[71]

104. He went on to define the "*Irrigated Region*" as "*... along the banks of the Orange and Vaal rivers in the Northern Cape, although other irrigated areas exist in other parts of the country*".[72] Hodge's definition appeared to stem directly from Van Rooyen's witness statement that defined the "*Irrigated Region*" as the maize growing region "*located primarily along the banks of the Vaal and Orange Rivers in the Northern Cape*".[73]

105. Hodge further stated that there are a number of special agronomic characteristics specific to this Irrigated Region, but "*a particularly pertinent feature of this growing region is that, due to its irrigated nature, this region is conducive to double cropping (meaning that two successive crops are planted within a single year — a summer and a winter crop).*"[74]

106. Hodge then explained that the farmers who double-crop do so under tight timeframes and thus have to use the ultra-early maturing hybrids. He stated that even the "*early maturing*" maize hybrids (as opposed to the ultra-early varieties) cannot be used in this area since it "*will take approximately 15 days more to reach harvest leaving the farmer insufficient time to plant the wheat harvest*".[75] He stated that the use of ultra-early maize

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[67] Transcript page 41.
[68] Genesis report, paragraph 9.2.
[69] CRM is the abbreviation of Comparative Relative Maturity.
[70] Genesis report, paragraph 19.
[71] Genesis report, paragraph 28.2.
[72] Genesis report, paragraph 19.
[73] Van Rooyen witness statement, paragraph 33.
[74] Genesis report, paragraph 22.
[75] Genesis report, paragraph 23.

seed allows approximately two weeks from the harvesting of the maize crop before the farmer needs to plant the wheat crop.[76]

107. Hodge ultimately concluded that there is very limited scope for demand-side substitution away from the ultra-early maize hybrids supplied to the Irrigated Region since this "*would jeopardize the ability for these farmers to double crop*".[77] In regard to supply-side substitution he argued that Pannar's germplasm base is [...] for the breeding of competitive ultra-early maturity hybrids for sale into the Irrigated Region. He conceded that Pannar is active in this area, but stated that [...].[78]

Parties' second definition: hybrids used on irrigated land

108. During Smith's cross-examination a second market definition emerged from the merging parties. They now wanted to change their previous definition of ultra-early maturing hybrids to all hybrids suitable for use on irrigated land. They referred to Exhibits 7 and 8 put up by the Commission and handed up Exhibit 9 which splits the market into (i) "Irrigated"; and (ii) "Non-irrigated", and shows the market shares of Pioneer, Pannar and Monsanto/others based on this new product market definition. Exhibit 7 shows Pioneer's sales data per product (i.e. hybrid name), as well as *inter alia* the associated CRM value and Area of Application (AOA) of each hybrid. Exhibit 8 shows Pannar's sales data per product and *inter alia* the region in which each hybrid product is sold.

Parties' third definition: ultra-early hybrids used in the Irrigated Regions

109. When the merging parties faced criticism from the Commission in regard to their second attempt at defining a potential separate product market, they advanced a third market definition. In their third attempt the market definition was changed from all hybrids suitable for use on irrigated land to "*ultra-early hybrids used in the irrigated regions*".[79]

Commission's view

110. The Commission contested the existence of a separate relevant product market as advanced by the merging parties at all of the three stages mentioned above. Smith was of the view that there is a single relevant product market for all maize hybrids in respect of breeding.[80] In respect of the "irrigated region hybrids", he pointed out that there does not appear to be a standard industry definition for irrigated region hybrids although the hybrids

[76] Genesis report, paragraph 23.
[77] Genesis report, paragraph 24.
[78] Genesis report, paragraphs 26 and 27.
[79] Transcript: Unterhalter: page 859; confirmed by Hodge: page 1467.
[80] Smith's report, paragraph 109.1.

identified by the merging parties are heavily favoured in areas such as the Northern Cape.[81]

Assessment

111. Pioneer, given its US base, has a strong background in early maturity hybrids. Breeders in the USA have been developing hybrids in this maturity class for their central corn belt areas for many years. This germplasm bred for ultra-early conditions has proven to be very well adapted for the South African "*Irrigated Region*" as defined by Hodge and Van Rooyen.

112. In a South African context the US germplasm base of Pioneer (and also of Monsanto) thus is better suited to the breeding of ultra-early maturity hybrids. As highlighted in paragraph 66 above, Pannar has traditionally focused and has strong capabilities in respect of later maturity hybrids.

113. It seems that no standard industry classification of ultra-early maturity hybrids exists. The Genesis report submitted on behalf of the merging parties merely noted that ultra-early maize varieties are "*generally considered to have a CRM of 115 days or less*".[82] This CRM measure is apparently adopted as a yardstick by Pioneer, but is not quoted by Pannar or Monsanto in their marketing materials. Pannar quotes growth classes, such as "ultra early", without specifying either a relative maturity value or the heat units[83] required; and Monsanto quotes the days to relative maturity and additionally reports the important influence of heat units to physiological maturity.

114. What is clear from the evidence is that farmers located in a geographic area of South Africa which has a dry climate and where the use of full irrigation is available, tend to double-crop and therefore use ultra-early maturity maize. Both Soper and Van Rooyen confirmed this: Soper stated that the "*shift toward double-cropping, particularly in the Irrigated Region of South Africa, along with a general trend toward reducing environmental risks, has led farmers increasingly to demand early maturity maize*".[84] Van Rooyen explained that these farmers make significant investments in irrigation equipment and other production inputs and that the return on these investments depends, to a large extent, on successful double-cropping and achieving top yields. Therefore these farmers demand maize hybrids that mature and dry very quickly, stand well until harvest and are

[81] Smith's report, paragraph 99.
[82] Hodge's report, paragraph 19.
[83] Heat is an important factor, in addition to time, in achieving physiological maturity - hot weather will accelerate physiological growth and maturity.
[84] Soper witness statement, paragraph 38.

also very high yielding.[85] Van Rooyen further stated that "*[v]irtually 100 percent of the maize grown in the Irrigated Region are hybrids considered to be "ultra-early"*".[86]

115. We next discuss each of the three market definitions advanced successively by the merging parties in support of the notion of a separate relevant product market.

Parties' first definition: ultra-early hybrids

116. Van Rooyen in regard to the ultra-early maize hybrid varieties stated that "*... small quantities of those same hybrid varieties are grown in specific areas outside the Irrigated Region ...*".[87] The evidence has however shown this latter statement to be untrue in as far as it relates to volume. Significant volumes of the ultra-early hybrids are also sold in other regions than the Irrigated Region that he referred to, as explained below.

117. The problem that the merging parties encountered with their first market delineation was that Pioneer's best selling ultra-early hybrid[88], which we for convenience shall refer to as the "Mpumalanga hybrid", representing approximately [0-40]% of its ultra-early sales, is sold not in the Irrigated Region as defined by Van Rooyen and Hodge but sold for use in the non-irrigated region i.e. on dry land.[89] Hodge conceded that the Mpumalanga hybrid did not fit the category as defined by the merging parties, that it "*by far outsold all the other Pioneer ultra sales*" and that it "*is a large seller, yes*".[90]

118. This meant that a very large portion of Pioneer's sales within the merging parties' definition of the "*Irrigation Market*" did not fit their rationale for the recognition of this market. These sales therefore had to be excluded from the merging parties' defined Irrigation Market. Hodge ultimately conceded that this oversight was based on an assumption he had made without checking whether it was true.[91]

119. The merging parties' first market definition was thus fundamentally flawed and could not be sustained in its original form.

Parties' second definition: hybrids used on irrigated land

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[85] Van Rooyen witness statement, paragraph 33.
[86] Van Rooyen witness statement, paragraph 33.
[87] Van Rooyen witness statement, paragraph 33.
[88] Based on sales volumes in 2010/11.
[89] Smith Presentation Exhibit 5, slide 15; Transcript: Hodge page 1438.
[90] Transcript page 1438.
[91] Transcript page 1451.

120. The merging parties' second attempt at defining a separate relevant product market however also turned out to be flawed and was contradicted by their own data and reasoning, as explained below.

121. The merging parties made the error of identifying certain hybrids as suitable for dry land only (which thus would fall outside the scope of the second product market definition) while they were in fact "multi-purpose" hybrids suitable for use on both dry and irrigated land (and thus fell within the scope of the second product market definition). These errors the Commission then highlighted in Exhibits 26 and 27, using information taken from catalogues of Pioneer and Pannar. Exhibit 26 is a reconstruction of Exhibit 7 (see paragraph 108 above) and gives an overview of current Pioneer maize hybrids suitable for irrigation and/or dry land; and Exhibit 27, a reconstruction of Exhibit 8, provides an overview of current Pannar maize hybrids suitable for irrigation and/or dry land.[92]

122. We do not know which proportion of these multi-purpose hybrids is in fact used on irrigated land (and thus fits the merging parties' market definition) and which proportion is used on dry land (and is thus incompatible with the merging parties' market definition).[93]

123. Furthermore, among the discovered documents is a Pannar strategic document in which Pannar identifies its main rival products at a hybrid level.[94] In this document Pannar identifies Pioneer hybrids which are not ultra-early maturing hybrids as the main rivals of [...] of its seven ultra-early irrigation hybrids. In other words, in respect of [...] of Pannar's seven hybrids that fall within the scope of the merging parties' second market definition, Pannar identifies as its main rivals Pioneer hybrids that fall outside the scope of this definition.

124. This is incompatible with the merging parties' contention that there are no real substitutes for the hybrids that fall within the scope of their second market definition.[95]

125. It is also not known which proportion of the hybrids included in the merging parties' second market definition is used for double-cropping and thus fits the rationale for their contention for a separate product market.[96]

126. Furthermore, if the merging parties' second market definition is adopted then Pannar is the undisputed market leader in terms of market share. The evidence further shows that

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[92] Transcript: Hodge pages 1456 to 1466.
[93] Transcript pages 1485 to 1487.
[94] Exhibit 6. This document indicates Pannar's targets and prices for 2011, as at 25 November 2010.
[95] Transcript pages 1488 to 1491.
[96] Transcript pages 1491 to 1492.

Pannar and Monsanto have won significant market share at Pioneer's expense: over the past four seasons (i.e. 2007/08 to 2010/11) Pioneer's share of the market segment including the ultra-early and pure irrigation/multi-purpose hybrids fell by [10-20]%; Pannar's share rose by [0-10]% and Monsanto's share rose by [0-10]%.[97]

Parties' third definition: ultra-early hybrids used in the Irrigated Regions

127. The application of the merging parties' third definition also presented problems.

128. Certain of the Pioneer and Pannar hybrids classified as pure irrigation (based on Exhibits 7 and 8 respectively) and thus included in the merging parties' market definition and analysis, are listed in their current sales catalogues as multi-purpose hybrids and are thus not only suitable for irrigated land.[98] The same principle applies to certain Monsanto hybrids included in the merging parties' market definition and analysis.[99]

129. A similar problem existed here as in the case of the merging parties' second market definition in that Pannar in its strategic pricing document referred to above, compared [...] of its ultra irrigation hybrids within the merging parties' third definition to later maturing "multi-purpose" hybrids of Pioneer. This comparison is incompatible with the merging parties' third definition as it demonstrates that Pannar identified Pioneer hybrids that fall outside the scope of their proposed market definition as the closest rivals of its hybrids that fall within it. Waehrer did not dispute this evidence.[100]

130. Furthermore, Hodge conceded that the ultra-early maturity hybrids are not only used in the Northern Cape where double-cropping is practised, but are also used in other irrigation regions.[101] There is however no evidence of the prevalence of double-cropping in areas outside of the Northern Cape. Hodge could not provide any such evidence and Waehrer did not dispute that only [0-30]% of Pioneer's sales of its "pure irrigation" hybrids were sold in the Northern Cape. Thus, the merging parties could not sustain their contention that the hybrids included in their latest definition were indeed used for double-cropping and thus conformed to their rationale for an alleged separate relevant product market.

131. Waehrer, although not personally responsible for the merging parties' market delineation, conceded that he relied on such definition in his analysis and conclusions in regard to likely price effects as a result of the proposed merger. Waehrer however under

[97] See market shares based on sales volumes in Exhibit 28.
[98] See Exhibits 26 and 27.
[99] See Exhibit 17, page 37; and also see Exhibit 31 (put up by merging parties).
[100] Transcript pages 1842 to 1843.
[101] See Hodge's supplementary expert report, paragraph 33.2 and Figure 2.

cross-examination was strangely reluctant to confirm the merging parties' rationale for the recognition of the "*Irrigation Market*" as a separate relevant product market. Ultimately he conceded that the premise of his exclusion of the hybrids sold in the Irrigation Market from his analysis was that substantially all were used for double-cropping.[102] Waehrer further confirmed that he in his expert report excluded all "ultra-early hybrids" from the application of his unilateral price effects model (see Hodge's definition in paragraphs 103 and 104 above).[103]

132. In regard to entry into the sale of ultra-early hybrids, Pioneer was the first player to introduce ultra-early hybrids which allowed farmers in the Irrigated Region to double-crop. This enabled Pioneer to capture a major market share in this market segment.[104]

133. Pannar entered the irrigation market segment in approximately the year 2000. The evidence clearly shows that Pannar has been able, albeit through [...], to breed, produce and distribute ultra-early maturity varieties bred largely from [...]. As stated in paragraph 84 above, Pannar [...] which is not intended for the Irrigated Region. Rather, Pannar undertakes its own breeding activity, using parental lines [...] to develop its own hybrids for sale in the Irrigated Region. Furthermore, the evidence shows that Pannar sells very significant quantities of maize seed in the Irrigated Region (see paragraphs 138 to 140 below).

134. Monsanto entered the irrigation market segment as early as 2007 if not earlier. The merging parties however contended that Monsanto entered this market segment in the most recent season i.e. 2010/11, "*with a bang*" and captured market share largely from Pannar.[105] However, the evidence shows otherwise. Monsanto has been active in the irrigation market segment since at least 2007.[106] This is confirmed by the publicly available Monsanto catalogues. We have relied on the 2007 date since Hodge testified that he could not verify the Monsanto data prior to 2007. He stated "*from 2003 to 2006 as I indicated earlier there is no geographic indicators on the Monsanto database, so we in fact can't allocate them to anything, not even South Africa some of them could be exports, we don't know. So it is an impossible task given the actual transaction dataset for pre 2007*".[107]

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[102] Transcript pages 1834 to 1839.
[103] Transcript pages 1839 to 1841.
[104] Transcript: Hodge page 1506; Van Rooyen pages 1125 and 1126.
[105] Waehrer's expert report, paragraphs 52 to 60; Waehrer Presentation: Exhibit 34, slide 8; Hodge Presentation: Exhibit 25, slide 12.
[106] Exhibit 29, which gives an overview of Monsanto's ultra-short maize hybrids suitable for irrigation or irrigation/dry land.
[107] Transcript page 1736.

135. Looking at the data from 2007 onwards, Monsanto's market share in 2007/08 in the irrigated market segment was approximately [0-10]% and in 2010/11 it was [10-20]%. Thus Monsanto's market share growth in this period was [0-10]%.[108]

136. Hodge ultimately conceded that Monsanto did not arrive in this market segment with a "*bang*", a concession evidenced by the following exchange between Hodge and the Commission's counsel:

> *"ADV TRENGOVE: Mr Hodge there was no bang of the kind that you claim, namely that Monsanto arrived in this market with a bang in the last year or two. That assertion is incompatible with these numbers.*
>
> *MR HODGE: With these numbers that would be correct, as I point out in terms of individual hybrids that's not correct."*[109]

137. Hodge further in relation to the Monsanto data contained in Exhibit 29 admitted that they show "*a flow of sales over time, that is transitioned from a group of hybrids to a newer set of hybrids and on these figures as you indicated, the sales in the current year are not wildly different from previous years*".[110]

138. Focussing on Pannar, the evidence shows that it, despite its late entry, significantly outperformed Pioneer in the irrigated region market segment. The remarkable aspect is that Pannar achieved this success in this market segment without any [...], and without any significant advanced breeding technologies, against its rivals, Pioneer and Monsanto, who have both.

139. Van Rooyen testified that Pannar at some stage "*actually ousted Pioneer as a market leader in the irrigated region*".[111] Van Rooyen further testified that the "*main competitor or the main company in the irrigated region at the moment is still us*".[112] Pannar still is undisputedly the market leader in this market segment with a market share of [40-50]%. Pioneer has a [20-30]% market share and Monsanto has a market share of [10-20]%. Waehrer confirmed that Pannar's market share in the irrigation market segment in 2010/11 was still higher than in its "*heyday*" period between 2006 and 2008.[113]

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[108] Exhibit 31 (put up by merging parties), which shows sales of Monsanto hybrids identified by Smith as being "irrigated region" hybrids.
[109] Transcript page 1504.
[110] Transcript page 1504.
[111] Transcript page 1128.
[112] Transcript page 1138.
[113] Transcript pages 1856 and 1857. Also see Exhibit 28.

140. Furthermore, Pannar's latest available own internal prediction is that it will make [...] sales in the irrigation market segment up to 2013/14, which is as far as its forecasts go, albeit at [...] volumes compared to the present season.[114]

141. The evidence further indicates that each of Pioneer, Pannar and Monsanto has undergone a marked shift in its breeding, production and distribution output between irrigated region hybrids and other hybrids over the past five years. In terms of supply, both in respect of maize breeding and the production and distribution of maize seed, both Pioneer and Pannar have shifted their activities between irrigated region hybrids and other hybrids over the past 10 years, with the irrigated region hybrids becoming relatively less important for Pioneer, and relatively more important for Pannar.[115]

142. Based on the available demand- and supply-side evidence, and given that the merging parties were not able to reconcile their successive market definitions with their rationale for the existence of a separate relevant product market i.e. the maize farming practice of double-cropping, we define national relevant product markets for (i) hybrid maize breeding; and (ii) the production and distribution of commercial maize seed.

143. Furthermore, even if a separate relevant product market for "*ultra-early hybrids used in the Irrigated Regions*" did exist, both Pioneer and Pannar compete in this area – Pannar is in fact at present the main player in this area - and Waehrer did not provide a compelling reason for altogether excluding this potential market from his price effects modelling (also see relevant counterfactual, paragraphs 198 to 265 below).

Market shares and concentration

144. The maize seed sector internationally, including South Africa, has been subject to very significant consolidation. Pannar traditionally was the leading hybrid maize seed company in South Africa and, until the late 1990s, had more than 50% of the South African sales of hybrid maize seed of which Pannar's own proprietary genetics made up nearly 100% of those sales.

145. Monsanto entered the South African market in the late 1990s by acquiring the South African seed breeding firms Carnia in 1998 and Sensako in 1999/2000. Monsanto thus through acquisition acquired access to locally-adapted germplasm.

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[114] Transcript: Hodge page 1512.

[115] Smith report, paragraph 83.

146. Pioneer is the only example of a significant greenfields entrant in the maize seed sector in South Africa. As stated in paragraph 5 above, it entered the market some 20 years ago in 1991/1992.

Upstream: hybrid maize breeding

147. At the level of hybrid maize breeding in 2010/11, Pioneer has a national market share of approximately [20-30]%, Pannar [20-30]%[116] and Monsanto and others [50-100]%.[117] It is common cause that other breeders, such as Klein Karroo, Link Seed and Agricol, collectively make up no more than 5% of this breeding market. Therefore the merged entity after this merger would have a national market share in maize breeding of approximately [40-50]%.

148. From the above-mentioned market shares it is evident that the hybrid maize breeding market is already highly concentrated pre-merger and that the proposed merger would bring about an additional very significant increase in the level of concentration. In terms of the HHI methodology the proposed merger would increase the level of concentration by more than 1,000 points.

Downstream: production and distribution of maize seed

149. Following the merging parties' methodology in respect of sales at the level of production and distribution of seed, Pioneer has a national market share in 2010/11 of approximately [20-30]%, Pannar [20-30]% and others (mostly Monsanto) [50-100]%.[118] Therefore the merged entity would have a national market share of approximately [40-50]%.

150. Again this market is already highly concentrated and the proposed merger would further significantly increase this level of concentration: the so-called delta in terms of the HHI methodology is more than 1,000 points.

Potential entry and barriers to entry

[116] Based on its own proprietary germplasm, Pannar in 2010/11 has a [10-20]% market share in this market. See Hodge's expert report, paragraph 45.
[117] Market shares are summarised in Exhibit 1. See also Schickler witness statement, paragraph 12.
[118] Smith's expert report, Table 13, paragraph 195. Hodge's expert report, paragraph 46.

151. From the evidence of Van Rooyen, Schickler, Soper and Hodge it is clear that there are high entry barriers in the upstream maize hybrid breeding market. We highlight this evidence below.

152. Van Rooyen stressed that in his view a competitively successful maize hybrid seed breeding firm today, given the process of innovation in the global industry and changes in market preferences, requires a number of things, namely: "*a suitable diverse germplasm pool (natural plant genetics), advanced breeding technologies (with which to develop that genetics pool) and access on competitive terms to biotech traits. A seed company also requires the means to produce and distribute the seed*".[119]

153. Schickler in similar vein stated that some trends in the maize industry are relatively new and others are continuations of dynamics that have long prevailed, but that they together "*have made it increasingly difficult for seed breeders with more limited resources (both in germplasm and in technology) to develop and offer competitive seed products to farmers based on their own genetics. Ultimately, this has made it increasingly difficult for these more limited seed companies to survive*".[120]

154. Schickler elaborated as follows on the requirement of germplasm: "*[t]he first, and perhaps the most important, difficulty for less well-integrated seed companies is that they do not possess sufficiently large pools of maize germplasm to provide the degree of diversity necessary to run a competitive maize breeding program*".[121]

155. Hodge in relation to maize hybrids breeding confirmed the large investment required and added that a sizable minimum efficient scale is furthermore required. According to Hodge, hybrid maize breeding "*is highly sophisticated, requiring substantial expertise and investment. In maize breeding it is essential to have a diversity, depth and quality of available germplasm. In is also necessary to have capabilities in advanced breeding technology tools which identify superior genetic combinations and assist in developing new varieties as efficiently and rapidly as possible. As such breeding typically has a sizable minimum efficient scale requirement*".[122]

156. In regard to breeding technologies Schickler submitted that "*maize seed companies with limited resources are significantly hampered by their inability to access cutting-edge breeding technologies. These are necessary to remain competitive; even if they have*

[119] Van Rooyen witness statement, paragraph 38.
[120] Schickler witness statement, paragraph 27.
[121] Schickler witness statement, paragraph 28.
[122] Genesis report, paragraph 14.2.

unique germplasm resources, these companies struggle to develop competitive maize products without access to the most up to date breeding technologies to facilitate the breeding process".[123]

157. Soper was of the view that smaller seed companies like Pannar are not able to support breeding programs that can approach the size and sophistication, and therefore the relative success, of Pioneer's.[124]

158. It is common cause that advanced breeding technologies are extremely expensive to develop and apply. Soper in this regard confirmed that "*MAS requires sophisticated scientific equipment and personnel, and can only be undertaken with very large capital investment*"[125]; and "*[l]ike MAS, though, doubled haploid technology requires a large capital investment and is economical only when implemented on a large scale with the most sophisticated technologies to lower cost and improve results*".[126] He further stated that the "*technology-driven evolution in maize seed innovation has helped Monsanto and Pioneer make significant competitive inroads in South Africa and other countries we have entered in the past 20 or so years. It has also made seed companies without these necessary advanced breeding technologies, like Pannar, far less competitive*".[127]

159. Schickler stated that DuPont annually invests billions in research and development worldwide, with one half of this research directed to agriculture, largely through Pioneer, and that it has more than 100 research stations and several major biotechnology centres worldwide. In fact it invests a significant portion of its worldwide turnover in research.[128]

Is locally-adapted germplasm an entry barrier?

160. The merging parties contended that Pioneer entered the South African maize breeding market without locally-adapted germplasm and that locally-adapted germplasm therefore is not a prerequisite for potential new entry. As stated in paragraphs 5 and 146 above, Pioneer entered the South African hybrid maize market some 20 years ago.

161. However the market structure and dynamic characteristics of the South African hybrid maize market have significantly changed since 1991/92. Robertson and Suter, as well as the merging parties' own witnesses, confirmed that the structure and competition

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[123] Schickler witness statement, paragraph 31.
[124] Soper witness statement, paragraph 27.
[125] Soper witness statement, paragraph 15.
[126] Soper witness statement, paragraph 20.
[127] Soper witness statement, paragraph 34.
[128] Schickler witness statement, paragraph 24.

landscape of the South African maize market when Pioneer entered the market in 1991/92 were very different from those now prevailing.

162. First, it is common cause that entry has become much more difficult and costly given the need for access to advanced breeding technologies and genetic traits (as stressed by the merging parties' own witnesses in paragraphs 152 to 159 above).

163. Robertson articulated these changes as follows: "*the market dynamic, certainly from a technological base would look very different. At that point ... a lot of the advanced breeding technology ... was certainly not in full execution as it is now, the trait technology was certainly not there as part of the equation and in the balance of the market share and market weighting, certainly wasn't at play. So I would suppose that probably entry at that point in time would be substantially different than what it is today*"[129]; Suter stated "*[i]t is more difficult to enter the South African market than it was 20 years ago. And the main points, once again which I would like to make is in terms of the Germplasm and the traits, the innovation and the technology are two major factors. 20 years on brands have evolved in the South African market and linked to those brands, teams, solid teams made up of people that know and are reputed in the industry as knowledgeable*".[130]

164. Second, this proposed merger itself would significantly change the market structure. A post-merger duopolistic market structure is significantly different from the prevailing market structure and certainly very different to 1991/92. Van Rooyen confirmed that the 199/92 market structure was significantly different.[131]

165. Furthermore, it is common cause that it will take a new "greenfields" entrant many years to build up a locally-adapted germplasm pool. Schickler conceded that although Pioneer has "*been active in South Africa for almost twenty years ... our locally-adapted germplasm pool is not as extensive or diverse as Pannar's ...*".[132]

166. Hodge when asked "*whether it is likely that an international breeder would enter without a local platform*" was evasive. He stated that "*I personally think it is difficult for me to determine that*".[133]

167. In regard to the small seed companies active in South Africa, they are all insignificant players and either do not have germplasm capabilities or do not have the required scale to

[129] Transcript pages 89 and 90.
[130] Transcript page 294, also see page 290.
[131] Transcript: Van Rooyen page 1339.
[132] Schickler witness statement, paragraph 43.
[133] Transcript page 1577.

facilitate effective new entry to compete with the merged entity and Monsanto in the post-merger world. Robertson and Suter confirmed that the smaller companies like Klein Karoo do not have the required scale of operation to collaborate with a potential new entrant in order to create an effective competitor in the market.[134]

168. Therefore Pannar's locally-adapted germplasm pool is the only such pool that is sufficiently diverse and extensive to constitute a platform for timely and effective new entry into the market by a participant to compete with Pioneer and Monsanto. The merging parties and third parties have all highlighted the value and significance of Pannar's locally-adapted germplasm pool (see paragraphs 65 to 69 above).

169. The barriers to entry created by the proposed merger, specifically the post-merger lack of availability of a sufficient pool of locally-adapted germplasm, clearly do have merger-specific consequences. Potential new entry that would be both timely and sufficient requires access to such a germplasm pool.

170. The merging parties argued that this outcome (i.e. that the locally-adapted germplasm pool of Pannar as a result of the proposed merger would no longer be available to another potential entrant) is not merger-specific to the instant transaction because any other takeover of Pannar would have the same result. We find this argument to be contrived and conceptually incorrect in a competition analysis context, specifically having regard to the fact that this is a "three-to-two" merger. Whilst a merger involving Pannar and a different third party might also render further potential entry improbable, such a hypothetical alternative merger (obviously apart from a merger of Pannar with Monsanto) would maintain three significant competitors in the South African maize seed sector. Given that the South African hybrid maize breeding market is a "three-firm" market, the competitive landscape and dynamics therefore are vastly different if another firm (other than Monsanto or Pioneer) should acquire Pannar.

171. Through this approach we are neither imposing an obligation on Pannar to be a public repository for local germplasm, as implied by Hodge, nor comparing the merits of one merger with another, as further implied by Hodge.[135] This merger is assessed here on its own merits. The issue is a rather simple one: there are only three firms in South Africa with substantial locally-adapted germplasm pools i.e. Pannar, Pioneer and Monsanto, and the evidence shows that such a germplasm pool is required for timely and effective new entry in the hybrid maize breeding market. If the proposed merger raised no significant

[134] Robertson witness statement, paragraph 38; transcript pages 90 and 222.
[135] Genesis report, paragraph 77.

competition concerns on the merits, then this would not be an issue, but if it did and one wanted to preserve a market structure with at least three effective competitors then the pairing of the proposed two of the three incumbent firms would not be a possibility. Given the market structure and market positions one can assume that a hypothetical merger between Pannar and Monsanto would similarly raise potential competition concerns. Any firm operating in a "three-firm" market such as that under consideration must accept that an anticipated merger with either of the other two incumbent firms would inevitably risk rejection by the competition authorities. That risk was known to the merging parties when this transaction was contemplated.

Would hypothetical greenfields entry be likely, timely and sufficient?

172. The prospect of entry into a relevant market will alleviate concerns about adverse competition effects only if such entry will deter or counteract any competitive effects of concern. In order for new entry to counteract the anticompetitive effects of a merger such entry has to satisfy three criteria, namely it has to be (i) likely; (ii) timely and (iii) sufficient in its magnitude, character and scope in order to compensate for the loss in competition as a result of the merger.[136]

173. Hodge alleged that new entry into the South African maize seed markets is possible by following the "Pioneer entry model". He would have it, in terms of this model, that global seed companies with strong international germplasm, competitive access to traits and advanced breeding technologies could enter the market without accessing Pannar's germplasm, while developing locally-adapted germplasm over time, as did Pioneer.[137] This model however ignores two of the crucial entry requirements namely that entry has to be both timely and sufficient.

174. From a greenfields entry perspective, according to Soper's evidence a new entrant may face the obstacle of it taking "*years of familiarity with South Africa and its unique growing conditions, climate, insects, and disease pressures, and the particular preferences and demands of its maize farmers, for a seed company to learn what products will be competitive in the country*".[138]

175. Robertson, based on DAS's experience in other geographies, was of the opinion that building the necessary local capabilities to achieve a financially sustainable and

[136] See *Horizontal Merger Guidelines* of the US Department of Justice and the Federal Trade Commission, Issued August 2010, section 9.
[137] Genesis report, paragraph 77.2.
[138] Soper witness statement, paragraph 54.

competitive position "*from the ground up*" would require not only a very significant investment, but would also take approximately a decade to establish.[139] He stated that "*if DAS was to enter the market on its own accord, attempting to build capabilities, products, and brands from scratch as a "greenfields project", the expectation is that it would take a minimum of eight to ten years to have a portfolio of locally adapted hybrid maize products and core capabilities that would be able to compete with the current major companies (Monsanto, Pioneer and Pannar)*".[140]

176. Robertson concluded that after assessing the potential cost and time which would be involved in establishing a presence in South Africa from the ground up "*this would likely not be economically viable and sustainable without the full range of locally adapted genetics and capabilities needed to present a competitive offering to growers against the entrenched competitors*".[141]

177. In regard to the time frame of potential effective greenfields entry, Suter testified that it would take about ten years for a new entrant to establish itself, during which time the entrant would be "*burning the same cash as any of the other players in the market without any revenues*". He went on to say that he could not propose that to any of his management at Syngenta as a "*realistic option*".[142]

178. In regard to genetics we therefore conclude that the diversity, depth and quality of a seed breeder's germplasm that must be locally adapted, constitutes a significant barrier to likely, timely and sufficient new potential entry. It would be totally naive to think that any greenfields entrant without a locally-adapted germplasm pool could after the proposed merger, in a timely fashion, effectively compete with the merged entity and Monsanto.

Brand strength and recognition

179. In paragraph 8 above, we indicated that Pannar regards the Pannar brand as one of its strengths in the South African maize market (also see paragraphs 63 and 69 above).

180. Robertson and Suter regarded brand loyalty as a barrier to entry. Robertson testified that there is "*a significant amount of brand loyalty within the corn seed business. So the development of that brand and that loyalty over time is a significant challenge for entry into some of those markets*"[143]; and that "*the corn seed business probably has some of the*

[139] Robertson witness statement, paragraph 16.
[140] Robertson witness statement, paragraph 26.
[141] Robertson witness statement, paragraph 38.
[142] Transcript page 221.
[143] Transcript page 88.

highest customer loyalty, farmer loyalty to a specific brand. And it is difficult to have growers switch".[144]

181. Suter was of the opinion that brand loyalty in the seed business is sufficiently strong that even a company like Syngenta, which has a strong position in crop protection or "agri-chem" in South Africa, cannot leverage that loyalty into seeds. He testified that "*[b]randing is highly relevant in the seeds business ... it is the basis of any investment for farmers and is an investment that they will see growing throughout a growing season*". He further testified that unlike the position in crop protection, it is an investment that is made by farmers as much with "*guts and their heart as with a brain*". He further said that Syngenta, notwithstanding that it has relatively high brand equity in crop protection, cannot pretend to have the same brand equity in seeds.[145]

182. Soper in relation to the Pannar brand confirmed that "*the intention is to keep the Pannar brand intact*"[146] and from Pioneer's strategic documents it is evident that it regards the strength of the Pannar brand as an important benefit of the transaction and as a reason for following a "*second brand*" strategy in South Africa.[147] Pioneer's strategic merger documents reveal the following assessment of the strength of the Pannar brand: "*[i]n South Africa Pannar represents [...]% of the corn units sold and is the leading brand*". Soper testified that he had no reason to dispute the latter quote as a true statement at the time i.e. in November 2008.[148]

183. Soper further confirmed that the reason for keeping the Pannar brand was that it has significant brand value in the South African market. He stated "*what we have learned from watching our competitors is that if you have a solid brand that has good recognition by local customers, it is often better to retain that brand than to try to switch say Pannar customers over to a Pioneer brand. It is just more effective business wise to retain that brand if it is a strong brand and I think this is the opinion of Pioneer in the situation of Pannar in South Africa*".[149]

184. From Van Rooyen's testimony it is similarly clear that Pannar would value the post-merger retention of the Pannar brand. In the context of a potential suitable partner for Pannar, Van Rooyen confirmed that the retention of the Pannar brand is important: he stated "*a strategic fit is basically looking at some way in which the brand and the genetics*

[144] Transcript page 176.
[145] Transcript page 204, also see pages 330 to 333.
[146] Transcript page 1075.
[147] Record page 1602; transcript pages 1651 and 1652.
[148] Transcript page 1081.
[149] Transcript page 1084.

can continue to make a contribution".[150] In relation to the proposed merger with Pioneer Van Rooyen saw "*benefits in terms of as the two brands grow side-by-side*".[151]

Sales requirements

185. Roberson was of the view that, apart from brand recognition, sales and service requirements could also make new entry more difficult. He summarised the critical requirements to establishing a sustainable competitive position in the South African maize seed industry as follows: "*... the necessary local capabilities, including breeding and testing for the development of locally adapted germplasm, seed production, logistics and supply chain resources, sales, service and distribution channels, and brands ...*".[152]

186. In regard to sales and distribution his view was that "*to promote, sell, and service brands directly to farmers requires an established and experienced sales and agronomy force, along with a robust supply chain and distribution channel, which can take many years to establish and is therefore a source of strong competitive barriers. In geographies with a high degree of concentration among competitors, and in which the existing players have established distribution arrangements and entrenched field sales and agronomy resources to service growers with locally adapted genetics and, in many cases, long-standing personal relationships, it is extremely difficult to acquire, train, and deploy sales resources and build an effective distribution channel, with the inevitable negative impact on efforts to build share and cash flow to sustain investment*".[153]

187. Also see Suter's comment in paragraph 69 above and paragraph 194 below in relation to integrated team skills.

Effect of proposed merger on entry decisions

188. According to the USA Horizontal Merger Guidelines entry would be likely if it "*would be profitable, accounting for the assets, capabilities, and capital needed and the risks involved, including the need for the entrant to incur costs that would not be recovered if the entrant later exits*".[154] In this context and given the significant investment required for any sizeable entry into the South African maize breeding and seed commercialisation markets, Robertson and Suter explained that any new entrant would have to weigh up carefully the risks and benefits of making such a significant upfront investment.

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[150] Transcript page 1163.
[151] Transcript page 1178.
[152] Robertson witness statement, paragraph 6.
[153] Roberson witness statement, paragraph 25.
[154] See *Horizontal Merger Guidelines* of the US Department of Justice and the Federal Trade Commission, Issued August 2010, paragraph 9.2.

189. According to Robertson, one of the factors that would affect the investment decision is that the merged entity and Monsanto after the proposed merger would have the resources *"to maintain and enhance their established positions in South Africa"*.[155] He further testified that "*concentration increases the financial resources of those that have a very significant market share and creates challenges and barriers*"[156]; and "*[t]he higher [the] level of concentration, the more challenge (sic) it is to establish your brand, because you have very dominant brands in the marketplace that are very well resourced*".[157]

190. Robertson further drew a comparison between the post-merger South African scenario and DAS's experience in Mexico. He explained that the market structure in Mexico is similar to the post-merger market structure in South Africa since Pioneer and Monsanto control more than three quarters of the Mexican hybrid maize market. He said that DAS, confronted with limited opportunities for ventures or acquisitions in Mexico, approximately seven years ago started a branded maize seed business "*from the ground up*". However, after several years and significant investment in Mexico, with the added benefit of a stable of DAS genetics from the USA and South America, it still is not an effective competitor in the Mexican hybrid maize market with a market share of less than [0-5]%. This he attributed to intense channel and incentive tactics from Pioneer and Monsanto based on their economies of scale advantages to counter the growth of new entrants.[158]

191. In Robertson's view entry barriers would become insurmountable after this merger.[159] He ultimately concluded that "*[w]hen you've got two very substantive market share players that are world class in terms of the corn seed business, which both of these companies are, the brand development, the equity, the level of competition in that space really would give us power (sic) [pause] in terms of whether or not Dow Agro Sciences would invest significant money to enter that market and in the hopes of having a long-term sustainable seed business. It really would be a very, very challenging environment to convince our corporate members to invest significant dollars into*".[160]

192. Suter's evidence on this score was to the same effect. He stated that the post-merger market structure "*would discourage third and any other players to invest as there would be very little of the market that could be effectively contested. Put differently, there would, in*

[155] Robertson witness statement, paragraph 7.
[156] Transcript page 88.
[157] Transcript page 88.
[158] Robertson witness statement, paragraphs 28 and 40; transcript page 89.
[159] Robertson witness statement, paragraph 7.
[160] Transcript pages 108 and 109.

that eventuality, be limited opportunities for commercial gain, particularly in the context of a market where the incumbents may have sufficient market power to exclude new competition. Investment in seed industry activities is considerable, and ... takes a very long time to produce finished, marketable products (seeds and traits). The economies of scale available in a market must accordingly be considered when making a decision to invest in innovation. The proposed merger will therefore place smaller players at a disadvantage in investing in innovation as the incentives to invest will be limited".[161]

193. Suter was further of the view that the proposed merger "*would also make a (sic) real competition in the white maize market impossible and would discourage any other players who could potentially partner with Pannar to enter the South African market*".[162]

194. In his oral testimony Suter stated that a new entrant would need a combination of many factors i.e. technology, innovation, brand and team, and that in totality "*is something that is very difficult to be build up from a green field (sic) point of view, even if you have 4 or 5, 3 players in the market. With 3 players it would be ... at the limit of what is feasible. With 2 players I don't think it is a valid proposition ... each of the competitors would only have to focus on one competitor ... And it would be too easy for one of them to just divert a little bit of resources to ... crush the starting operation ...*".[163]

195. In a potential investment context, Schickler testified that Pioneer "*lost money in [...] of its first ten years operating in South Africa*".[164]

Conclusion

196. The issue of entry barriers must be assessed in the context of the proposed merger bringing about a duopoly in the South African hybrid maize seed sector. We conclude that the barriers to entry in the breeding of maize hybrids are compelling and would significantly deter any timely and sufficient potential new entry. It is clear that any hypothetical new greenfields entry would not in a timely and effective manner arrest any potential competitive harm resulting from the proposed transaction.

197. Although the barriers in relation to maize seed commercialisation activities are not unduly compelling, commercialisation activities on their own do not allow for effective competition with the vertically integrated maize seed companies, as evidenced by the very

[161] Suter witness statement, paragraph 28, also see paragraph 57.
[162] Suter witness statement, paragraph 32.
[163] Transcript pages 366 and 367.
[164] Schickler supplementary witness statement, paragraph 14.

low market shares of all the smaller maize seed companies in South Africa that collectively have a market share of no more than 5% in any of the relevant market(s).

Relevant counterfactual

Background

198. In the competition analysis of this merger we compare two situations, neither of which currently exists, namely: (i) the factual: this describes a world in which the merger goes ahead; and (ii) the counterfactual: this describes a world absent the merger, but with other future imminent or reasonably predictable changes. In other words the counterfactual considers the base-line state of competition that would exist in the counterfactual to the merger. The difference between the factual and the counterfactual tells one whether or not there would be a significant lessening or prevention of competition in the post-merger state of the world.

199. The merging parties' and Commission's expert witnesses disagreed on the relevant counterfactual. This disagreement related to what would likely to happen to Pannar absent the merger in terms of future prospects and, more specifically, Pannar's future access to GM traits and trait conditions.[165] The merging parties argued that the relevant counterfactual is a continued decline of Pannar; the Commission argued that Pannar's decline is not imminent, as explained below.

Merging parties' view

200. In relation to Pannar, the merging parties contended that the relevant counterfactual is not the status quo i.e. the current market position of Pannar, but a future in which Pannar is in terminal decline as a competitive force in the South African hybrid maize market, specifically in relation to the breeding of maize hybrids. Van Rooyen claimed that "*[i]f the proposed transaction with Pioneer does not occur, Pannar's competitive position will continue to decline and Monsanto's leading position will be enhanced ...*".[166] This is said to be mainly as a result of the shift amongst South African farmers to earlier maturity maize hybrids and Pannar's increasing reliance on [...].[167]

201. Soper echoed this sentiment and related Pannar's decline to a lack of access to advanced breeding technologies and germplasm: he stated "*[i]f the proposed transaction is*

[165] Exhibit 13, paragraph 8.
[166] Van Rooyen witness statement, paragraph 70.
[167] Van Rooyen witness statement, paragraph 58.

not consummated, Pannar is likely to continue to decline without access to advanced breeding technology and germplasm".[168]

202. Van Rooyen also stressed Pannar's lack of effective access to advanced breeding technologies; he said that whilst Pannar "*is able to access certain advanced breeding technologies*" the "*fundamental difficulty is that we do not have the scale and resources to develop these technologies on our own to anywhere near the extent that the global vertically-integrated companies do, or to adequately access and use these technologies on a scale that is both cost effective and viable*".[169]

203. In relation to these technologies, Van Rooyen confirmed that Pannar undertakes small amounts of genetic analysis and marker work. He stated that Pannar evaluated approximately [0-999] thousand data points in 2010 at a cost of up to [R0-R99] per data point evaluated.[170] By comparison: Pioneer created over [0-999] million genotyping data points worldwide in 2010, at a cost of less than [R0-R99] per data point.[171]

204. Van Rooyen further stated that Pannar from the late 1990s onward tried to remedy this situation and stem its decline through a number of strategies. He summarised these strategies as: "*going it alone*", a partial or total sale of Pannar's maize business, various joint ventures and collaborations, acquisitions of other firms, licensing arrangements, mergers and various combinations of these alternatives.[172] The current proposed merger with Pioneer is one of these Pannar strategies.

205. Van Rooyen went on to say that despite "*approaches to be purchased, in whole or in part, over the period 1998-2006 by at least [...] companies*" Pannar before the current deal with Pioneer took the decision to try to "*go it alone*". The reason for this decision at the time according to Van Rooyen was that "*Pannar still had a very significant share of the South African maize sector at that stage ...*" and "*... in part because in earlier years we did not fully appreciate the impact that technology would have on our ability to remain competitive in the long run*".[173]

206. He also confirmed that Pannar for some time considered alternative strategies specifically aimed at accessing advanced breeding technologies. As far back as the late 1990s Pannar already recognised that the emerging technologies and industry trends

[168] Soper witness statement, paragraph 47.
[169] Van Rooyen witness statement, paragraph 40.
[170] Van Rooyen witness statement, paragraph 40.1.
[171] Soper witness statement, paragraph 28.
[172] Van Rooyen witness statement, paragraph 46.
[173] Van Rooyen witness statement, paragraph 47.

would likely impact its maize seed business and future ability to compete. However, according to Van Rooyen, the actual impact totally surpassed Pannar's expectations as those technologies and trends have played an increasingly greater role in the innovation of new maize hybrid varieties.

207. In 2005 Pannar acquired operations in the United States including a research company and four maize breeding programs in an effort to gain better access to early maturity germplasm and earlier access to biotech traits that would later be registered in South Africa. Pannar also started to place more focus on its operations in Africa where technology had not yet had the same impact as in South Africa.

Commission's view

208. Smith contested the merging parties' view in regard to Pannar's future weakened competitive position. He concluded that over the reasonably foreseeable future of up to five years:

(i) there appear to be several plausible mechanisms by which Pannar might enter into a commercial arrangement with another seed breeder in the absence of the instant transaction; Smith however did not express a view as to what form such an acquisition or partnership might take;

(ii) in respect of Pannar's access to GM traits, that Pannar [...][174] and would continue negotiations to gain access to alternative sources of GM traits on more favourable terms than Pannar's current access to traits from Monsanto; and

(iii) innovation in the relevant market(s) is likely to continue in South Africa in respect of improving maize yields.[175]

Assessment

209. In relation to the relevant counterfactual, the South African merger provisions allow for only one specific factor that would justify a departure from the status quo. This is section 12A(2)(g) of the Act which states that one must in merger assessment consider "*whether the business or part of the business of a party to the merger or proposed merger has failed*

[174] Based on [...].
[175] Expert report, paragraph 9.

or is likely to fail". This is known as the so-called "failing firm defence" that merging parties may invoke in merger proceedings.

210. There is however no need for us in this case to deal with a failing firm analysis of Pannar since the experts of both the merging parties and the Commission agreed that Pannar does not credibly fulfil the requirements of a failing firm.[176] Furthermore, the merging parties advanced no evidence to show that Pannar would meet the requirements of a failing firm within the meaning of the Act and the test as laid down in the South African and international jurisprudence.[177]

211. However, the merging parties did rely on the following: as explained under the relevant market analysis, the merging parties contended that the "Irrigation Market" had unique characteristics and constituted a separate relevant product market and Waehrer excluded this regional altogether from his unilateral price effects modelling. Waehrer confirmed that he "*used the model on the non irrigated region hybrids only and did not apply the model to the irrigated region*".[178] He explained that he did a qualitative analysis of "*the impact of the transaction on irrigated region hybrids*"[179] and concluded that "*Pannar will [...] for hybrids adapted for the Irrigated Region*".[180]

212. This means that the merging parties in effect raised a failing firm-type defence not in relation to Pannar as a firm but in relation to its future competitive position in a potential product market i.e. the Irrigation Market (see paragraphs 101 to 109 above).

213. The analysis that follows seeks to answer the question whether the relevant counterfactual in relation to Pannar is (i) the status quo i.e. the prevailing pre-merger conditions of competition; or (ii) an alternative foreseeable situation that is significantly different from the status quo.

214. We start by explaining and referencing the standard international best practice in relation to the appropriate counterfactual in merger assessment.

215. Internationally competition authorities regard the status quo or prevailing pre-merger conditions of competition as the relevant counterfactual - unless there is specific evidence that the prevailing conditions of competition are unlikely to continue in the foreseeable

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[176] Exhibit 13, paragraph 7.1.
[177] See, for example, the large mergers involving *Iscor* and *Saldanha Steel*; case no. 67/LM/Dec01, paragraphs 77 to 142; and *Santam* and *Emerald Insurance*; case no. 57/LM/Aug09, paragraphs 52 to 77.
[178] Transcript, page 1815.
[179] Transcript, page 1815.
[180] Expert report, paragraph 60.

future. This has always been the approach adopted in South Africa, but is also the approach of other merger jurisdictions, as explained below.

216. Hodge confirmed this approach to the determination of the counterfactual in merger assessment: he stated that *[i]n almost all instances the current state of competition observed in the market is used to set the base-level counterfactual*".[181] He went further to state that "*[i]n relatively rare cases where there is strong evidence that the state of competition is very likely to change going forward then it may be appropriate to consider a modified counterfactual against which the effect of the merger should be determined. However, in doing so one should have sufficient and compelling evidence to indicate with a great degree of certainty what the likely counterfactual situation would be if the current situation is not used. It is not appropriate to speculate on a range of potential counterfactuals that are less likely to materialise*".[182] He again in his oral evidence confirmed that a departure from the status quo as counterfactual is only applicable when there are "*likely and imminent changes in the nature of competition*".[183]

217. We summarise below the approaches in relation to the counterfactual of some international jurisdictions: The EU Merger Guidelines confirm that "*[i]n most cases the competitive conditions existing at the time of the merger constitute the relevant comparison for evaluating the effects of a merger*"[184]; the USA Horizontal Merger Guidelines frequently refer to the analysis compared with conditions "*absent the merger*"[185]; and the UK Merger Assessment Guidelines state "*[i]n practice, the OFT generally adopts the prevailing conditions of competition (or the pre-merger situation in the case of completed mergers) as the counterfactual against which to assess the impact of the merger*"[186] and "*the CC [Competition Commission] will typically incorporate into the counterfactual only those aspects of scenarios that appear likely on the basis of the facts available to it and the extent of its ability to foresee future developments; it seeks to avoid importing into its assessment any spurious claims to accurate prediction or foresight*".[187]

218. Hodge in respect of the counterfactual also quoted the ICN Merger Guidelines Workbook which states that one should take into account "*likely and imminent changes in the nature of competition*".[188] As examples of such changes the ICN lists committed

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[181] Genesis report, paragraph 33.
[182] Genesis report, paragraph 34.
[183] Hodge presentation: Exhibit 25, slide 13.
[184] European Commission: *Guidelines on the assessment of horizontal mergers*, paragraph 9.
[185] USA *Horizontal Merger Guidelines*, see for example sections 2.1.4, 4.1.1, 4.1.2, 6.2, 6.3.
[186] UK OFT and Competition Commission: *Merger Assessment Guidelines*, paragraph 4.3.5.
[187] UK OFT and Competition Commission: *Merger Assessment Guidelines*, paragraph 4.3.6.
[188] Genesis report, paragraph 35. Also see ICN Merger Guidelines Workbook, April 2006, paragraph 2.10.

changes in capacity, expected entry/exit (including the failing firm defence) and regulatory changes.

219. Given the degree of certainty required the counterfactual must be assessed in a foreseeable period. Conceptually, the relevant time frame to use must be guided by the relevant context of the market(s) concerned, and should balance the uncertainty over assessing the counterfactual and factual into the future. The UK Merger Assessment Guidelines in this respect state that "*[t]he description of the counterfactual is affected by the extent to which events or circumstances and their consequences are foreseeable, enabling the Authorities to predict with some confidence. The foreseeable period can sometimes be relatively short*".[189]

220. We consider a period of no more than five years as a reasonable time frame for the counterfactual analysis since changes in the conditions of competition beyond this point become highly speculative. This approach is consistent with the time frame over which the merging parties provided information in this case and the time frame of publicly available information in regard to the maize seed market(s) (see for example paragraph [...] above).

221. In relation to Pannar's competitive situation over the next five years in the event that the proposed merger does not proceed, one of two hypothetical outcomes may transpire: (i) Pannar simply could continue competing, in Van Rooyen's words, on a "*go it alone*" basis; or (ii) Pannar could search for a partnership with another international seed company that will allow it to maintain or even grow its competitive position in the market.

222. However, the merging parties disputed that any evidence relating to the latter outcome is relevant to the current merger proceedings. We disagree with this view. We stress that it is the merging parties who in this case insisted that a departure from the status quo is necessary by taking into account the alleged future continued decline of Pannar. If we consider this in our analysis, then we must also take into account reasonably foreseeable alternative situations for Pannar that could affect such alleged decline. The merging parties simply cannot have their cake and eat it.

223. The issue here is not the refrain from the merging parties that Pioneer is Pannar's preferred partner and that the greatest efficiencies would be achieved by a merger involving Pannar and Pioneer. These claimed efficiencies are taken into account as part of the effects analysis that follows. It must also be made clear that we are not analysing competing bids here. In fact there are no bids for Pannar that are competing with the

[189] See UK OFT and Competition Commission *Merger Assessment Guidelines* at paragraph 4.3.2.

Pioneer bid. The consideration of the relevant counterfactual is not an exercise in cherry-picking the most attractive alternative. We are not assessing, as alleged by Hodge, whether another merger that is not before us might be better for competition i.e. "*whether a better bride waits in the wings*"[190] (also see paragraph 224 below).

224. This approach is wholly consistent with the Tribunal's decision in *Tiscali*[191] where the Tribunal stated: "*Our task is not to indicate which firm might be a preferred buyer, but only if the merger as proposed would be in violation of the Act. If the answer to the latter question is in the negative, then the merger as proposed must be approved regardless of whether a better bride waits in the wings*".[192] The same principle applies here.

225. It is important to place the *Tiscali* decision in its proper context. *Tiscali* dealt with a merger that was approved subject to certain conditions. A suitor nevertheless objected to the merger on the grounds that a merger between it and the target firm would have a more competitive outcome. Clearly, a merger that is approved on competition grounds cannot be disqualified merely because another merger might be more pro-competitive. The *Tiscali* decision is wholly inapposite in the current context. Here the proposed merger was prohibited because it, assessed on its merits and not in comparison with another proposed merger, would substantially prevent or lessen competition in the relevant market(s).

226. Neither does the counterfactual concern whether or not Pannar has been successful historically in negotiations with parties other than Pioneer, but rather what Pannar might do in future in the event of not being able to complete the proposed transaction. The crisp relevant issue therefore is, in the event that this merger does not take place, could Pannar halt its alleged deteriorating competitive position?

227. Furthermore we point out that in a failing firm context the onus is on the merging parties to demonstrate that there is no less anticompetitive alternative open to the failing firm than the proposed merger with the acquiring firm. No leniency is afforded to the enforcement of this requirement.[193] Thus in a counterfactual context the merging parties' contention that no regard may be had to the prospect of a merger between Pannar and another international seed company is incongruous with the established South African and international approach

[190] See Tribunal decision in the merger involving *Multichoice* and *Tiscali*; case no. 72/LM/Sep04, paragraph 80.
[191] *Tiscali* decision.
[192] See paragraph 80 of the Tribunal's reasons.
[193] See merger involving *Iscor* and *Saldanha Steel*; case no. 67/LM/Dec01, paragraph 110.6 and 108.

and case law and with their own contention that absent *this particular* proposed merger (as opposed to *any* merger) Pannar's decline is a certainty.[194]

228. The question that we ask ourselves is if realistic alternative strategies exist that Pannar could pursue and which could stem the alleged decline of its maize seed business, which strategies may include an alternative transaction with another partner, ultimately of Pannar's choice, should the current transaction not proceed. Such alternative transaction arguably may be a less attractive option from a Pannar shareholder perspective than the proposed merger with Pioneer. This however should not distract us.

229. We must stress that in the case of an anticompetitive merger the private interests of firms cannot ever trump the broader public interest consideration of a substantial lessening or prevention of competition, with concomitant negative effects on consumers. A higher premium in terms of the purchase price offered to the shareholders of a target firm is not a mitigating factor in assessing the competition effects of a transaction. It is wholly conceivable that a purchaser would be willing to pay a very considerable premium over fair value for a target firm if such transaction would substantially prevent or lessen future competition in the market(s) in which they compete or as part of a pre-emptive strategy to prevent the target firm from being bought by a new entrant or existing competitor.

230. In regard to the first potential counterfactual stated in paragraph 221 above, that Pannar, in the event that the proposed merger did not proceed, simply could continue competing in the market on a "*go it alone*" basis, we find that prospect implausible and inconsistent with the past actions and intentions of Pannar. Van Rooyen made it clear that such strategy in the past did not bear the required fruit.

231. In regard to past potential transactions, Van Rooyen submitted that, prior to concluding the Pioneer agreement, Pannar over the period 1998 to 2006 was approached by at least [...] companies to be purchased, either in whole or in part. One of these approaches was from [...].

232. As stated in paragraph 205 above, Van Rooyen further stated that the other negotiations were not fruitful, in part because at the time Pannar did not fully appreciate the impact that technology would have on its ability to remain competitive in the long

[194] See, for example, the *Merger Enforcement Guidelines* of the Canadian Competition Bureau (2011), paragraph 13.7.

run[195], as well as the fact that "*Pannar still had a very significant share of the South African maize sector at that stage and the decision was made to try to "go it alone"*".[196]

233. Below we shall provide background information to Syngenta and DAS as mere examples of firms that potentially could partner with Pannar to address the issue of the alleged recent decline in its competitive position. We shall also provide Pioneer's view in relation to these firms as potential competitors in the markets under consideration.

234. Pioneer's strategic documents identify both Syngenta and Dow as "*key competitors*".[197] Furthermore, it appears from internal Pioneer documents that one of the "*acquisition objectives*" in respect of the Pannar acquisition is a "*[p]re-emptive strategic move against competitors*"[198] – these competitors, as stated above, include Syngenta and Dow (and obviously Monsanto). Schickler's only explanation for this objective was to say that Pioneer has its business plan and understands that it is better do that effectively before someone else interrupts it.[199]

235. The fact that Pioneer was concerned about alternative competitive bids is furthermore confirmed in the discovered Pioneer strategic documents. A letter addressed to the Office of the Chief Executive states: ["..."].[200] Schickler conceded that the business development team had "*a more real concern in respect of particular bidders*".[201]

Syngenta and its GM traits

236. Syngenta is a global agri-business company which internationally ranks third in total sales in the commercial agricultural seeds market. It is active in most of the maize-growing countries around the world. It has a diverse germplasm pool, which covers both temperate and tropical germplasm.[202] According to Suter's evidence, Syngenta has extensive experience in yellow maize especially in Latin America, which could fit well with Africa.

237. Syngenta furthermore has advanced breeding technologies embedded in its standard research and development programmes, including maize. These include MAS, doubled haploid technology and bio-informatics.[203]

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[195] Van Rooyen witness statement, paragraph 47; transcript pages 1279 to 1281.
[196] Van Rooyen witness statement, paragraph 47.
[197] Transcript: Schickler page 1651.
[198] Trial bundle pages 1602, 1608 and 1716. Transcript: Schickler page 1654.
[199] Transcript: Schickler page 1653.
[200] Trial bundle page 1610.
[201] Transcript: Schickler pages 1663 and 1665.
[202] Suter witness statement, paragraphs 2 and 9.
[203] Suter witness statement, paragraphs 3 and 4; transcript page 191.

238. Syngenta is also one of the world leaders in bio-tech traits with several proprietary insect and herbicide tolerance traits. According to Suter's evidence Syngenta also has a strong pipeline that will provide further new biotic as well as abiotic traits for commercialisation in the near future.[204]

239. However of particular relevance to the counterfactual analysis is the fact that Syngenta has certain traits registered in South Africa and [...], as explained below.

240. Syngenta in South Africa already holds registrations for three GM traits namely (i) Bt11[205]; (ii) GA21[206]; and (iii) the Bt11/GA21 stack[207]. The Bt11 and GA21 traits have a similar spectrum to, and are sold in many major maize-growing countries around the world, including the USA, Brazil and Argentina, as equivalent products to Monsanto's MON810 and NK603 traits, respectively.[208]

241. Furthermore, [...][209]

242. In relation to a potential broader collaboration with Pannar, Suter stated that Syngenta has a strong interest in increasing its position in the South African maize seed market[210] and testified that Syngenta would give serious consideration to a possible alliance [...] with Pannar in the event that the current proposed merger did not proceed.[211]

243. From a historic perspective [...]. Van Rooyen explained that when [...], the Pannar shareholders had become fully aware of the [...] of Pannar's competitive position and accordingly [...].[212] That was the first occasion that all the Pannar shareholders agreed to [...].[213] The strategic documents further show that the Pannar shareholders were willing [...].[214] [...]. For the purpose of the counterfactual analysis we need not provide the details of discussions that ensued after that but point out that the documents in question *inter alia* confirm that [...],[215] and [...].[216]

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[204] Suter witness statement, paragraphs 7 and 16; transcript page 198.
[205] Insect resistance in classification: maize, 2003.
[206] Glyphosate resistance in maize, 2010.
[207] Stacked trait for both insect and glyphosate resistance in maize, 2010.
[208] Suter witness statement, paragraphs 18, 19 and 21.
[209] [...]; transcript: Van Rooyen page 1231.
[210] Suter witness statement, paragraph 23; transcript page 192.
[211] Suter witness statement, paragraph 24.
[212] Transcript: Van Rooyen page 1283.
[213] Transcript: Van Rooyen pages 1278, 1288 and 1289.
[214] Transcript: Van Rooyen pages 1260 and 1294.
[215] Transcript: Van Rooyen pages 1262 and 1266; Trial bundle page 697.
[216] Transcript: Van Rooyen page 1291.

244. Furthermore, Van Rooyen recalled that Syngenta wanted to enter the South African seed market with a [...].[217] This is confirmed in the discovered strategic documents.[218]

245. However, according to Van Rooyen's evidence the [...][219]

DAS

246. DAS is an international seed breeding company that owns and operates seed production, breeding, testing, supply chain, sales and marketing capabilities for both branded seed products and licensed seed products, in multiple crops, including maize.[220] According to Robertson, DAS also has certain advanced global breeding technologies and capabilities (including MAS, doubled haploid technologies, advanced bio-informatic tools and high throughput screening).[221] DAS furthermore has a diverse portfolio of germplasm across Europe, the Americas, Canada, the USA, Latin America, Brazil and Argentina.[222] According to Robertson, DAS has also developed and co-developed some of the most widely-used seed and trait products in the industry.[223]

247. Although DAS specifically has germplasm adapted to USA conditions (also see paragraphs 111 and 112 above in relation to Pioneer's USA based germplasm), it, like Syngenta, does not have a pool of maize germplasm which has been locally adapted for South African conditions.[224] DAS currently also has no branded position or trait registrations in South Africa.

248. Despite this, Robertson stated that in DAS's opinion the proposed merger with Pioneer is not the only option to sustain and grow Pannar's business and brand, since other partnerships and or collaboration options exist, particularly with DAS.[225] Robertson expressed the view that a partnership between DAS and Pannar, which would combine Pannar's local genetics and local capabilities with DAS's international biotechnology expertise and global genetics, would offer a compelling option.[226]

249. Robertson attributed the fact that DAS is not currently active in South Africa to its belief that it is not "*feasible to build an economically sustainable branded seeds business from*

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[217] Transcript: Van Rooyen pages 1254 to 1257.
[218] Trial bundle pages 697 and 2010.
[219] Transcript: Van Rooyen pages 1238, 1286, 1292, 1301 and 1302.
[220] Robertson witness statement, paragraph 4.
[221] Robertson witness statement, paragraph 19; transcript: Robertson pages 78 and 79.
[222] Transcript: Robertson pages 77 and 78.
[223] Robertson witness statement, paragraph 5.
[224] Robertson witness statement, paragraph 13.
[225] Robertson witness statement, paragraph 33.
[226] Robertson witness statement, paragraphs 8 and 34.

the ground up". This conclusion he based on DAS's assessment of the current level of market consolidation in South Africa, and the likelihood that a technology licensing business alone would not offer financial returns sufficient to justify the necessary investment.[227]

250. The evidence indicates that in [...].[228] Pannar at that stage had already reached agreement on a proposed merger with Pioneer.

251. In the above context we do not find it credible that the families controlling Pannar would simply allow its South African business, which is its most valuable asset by far (see paragraph 7 above), to wither away and go to waste. The purchase price that Pioneer is willing to pay for Pannar demonstrates that it is a very valuable commodity. To allow Pannar to go to waste would also be in direct conflict with Pannar's stated social responsibility to workers and the larger Greytown community. In Van Rooyen's words: Pannar "*is very much part of the Greytown community ... [w]e wanted to ensure that the benefits of any venture would extend to all stakeholders, including our employees and customers as well as the broader community*".[229]

252. From the evidence it is clear that, if the proposed merged does not proceed, the way in which the value of the Pannar business could be preserved and exploited is by a partnership with an international seed firm. The evidence is that at least two firms, Syngenta and Dow are interested in forging a partnership with Pannar in South Africa. [...]. There is [...] every reason to believe that they would, especially having regard to the erosion of market strength that Pannar says it is experiencing.

253. It is also not credible that Pannar would allow its locally-adapted germplasm, which is a very valuable and "unique" asset, to go to waste. Van Rooyen emphasised that "*Pannar has spent decades developing the characteristics most prized by South African and African farmers*".[230] It is furthermore common cause that a locally-adapted germplasm portfolio is a fundamental asset; in Soper's words "*[g]ermplasm lines are the crown jewels of a seed breeding company ...*".[231] Furthermore, the factual witnesses agreed that access to adequate germplasm, well adapted to the relevant agro-climatic conditions, is a key to commercial success in the South African maize seed business. Not surprisingly access to Pannar's locally-adapted germplasm pool is also one of the main reasons for this proposed

[227] Robertson witness statement, paragraph 35.
[228] Transcript: Robertson pages 92 and 102; Exhibit 4:[...].
[229] Van Rooyen witness statement, paragraph 54.
[230] Van Rooyen witness statement, paragraph 75.
[231] Soper witness statement, paragraph 51.

transaction, and Pioneer is paying a very substantial sum of money to acquire this. A locally-adapted germplasm pool is furthermore a fundamental barrier to entry into maize hybrid seed breeding. We therefore conclude that it is unlikely that Pannar's germplasm would become obsolete as opportunities exist for it to be commercially exploited through strategic partnerships with one or more other global seed companies.

254. We are also not persuaded by Van Rooyen's suggestion that Pannar [...] and focus on Pannar's operations in the rest of Africa. This would not be a solution to the problem as identified by Van Rooyen. As stated in paragraph 7 above the sale of hybrid maize seed in South Africa has always been Pannar's principal source of revenue. Furthermore, according to Van Rooyen himself, there is a growing realisation of the need for technology and traits even in the rest of Africa.[232] He stated "*Pannar also started to place more focus on our operations in Africa, outside of South Africa, where technology had not yet had the same impact as in South Africa [...]. However, [...] more and more African countries are putting legislation in place or considering legislation to approve the use of biotech traits, and as commercial farming operations and practices in Africa also become more sophisticated*".[233]

Innovation

255. The merging parties' witnesses repeatedly emphasised that the maize hybrid seed market is characterised by continuous innovation (also see paragraph 337 below). Soper in particular highlighted Pioneer's credentials in respect of taking innovation forward, which credentials and intention would remain present absent the merger. Hodge stated that "*[i]nnovation going forward will continue to play a significant role in driving yield gains*".[234] His report quoted Monsanto in regard to the future yield improvements in South Africa. He provided a figure taken from the Monsanto website titled "*An illustration of industry expectation regarding the impact of biotechnology and molecular breeding tools on maize yield potential*". These projected Monsanto yield improvements do not take the proposed Pioneer/Pannar transaction into account.[235]

256. We therefore conclude that there would be ongoing yield improvements in the hybrid maize seed market(s) in South Africa in the counterfactual world.

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[232] Transcript page 1317.
[233] Van Rooyen witness statement, paragraph 49.
[234] Expert report, paragraph 118.3.
[235] Genesis report, Figure 7, paragraph 118.3.

Conclusion

257. The merging parties cited three main reasons for Pannar's alleged declining market position (i) a lack of access to advanced breeding technologies; (ii) a shift to earlier maturing hybrids; and (iii) increasing reliance on [...].[236] Whilst the shift to earlier maturing hybrids is a current reality likely to continue (see paragraphs 95 to 98 above), we have not found "*sufficient and compelling evidence*" in this case that Pannar could not absent this transaction access advanced breeding technologies and/or [...]. The evidence suggests quite the opposite.

258. Pannar is still, as conceded by Van Rooyen, the market leader in the irrigated region. This suggests that Pannar must have some competitive advantages over its competitors, which may include brand strength (see paragraphs 8, 63, 69 and 179 to 184 above) and strong relationships with farmers (see paragraph 69 and 185 to 187 above).

259. In regard to traits, the evidence has shown that [...], and [...] (also see paragraphs 62 and 92 above). Pannar would not have had any incentive to enter [...]. Thus, given the existence of one such recent [...], it is reasonable to conclude that in the foreseeable future Pannar will have alternative terms of access to GM traits.

260. Also, Monsanto's IP protection has a limited life and already one important patent is on the point of expiry. So it is probable that Pannar will in any case have to change its strategies in order to remain a competitive supplier of GM seed.

261. The evidence further suggests that a [...] strategy is not a likely and realistic alternative for Pannar. Pannar has tried to remedy its weakening market position by entering into a merger transaction with Pioneer. In the context of the relevant counterfactual it is reasonable to believe that in the absence of a consolidation with Pioneer, Pannar would again consider alternative collaborations or even a merger.

262. In respect of alternatives open to Pannar, there appear to be several plausible mechanisms by which Pannar might enter into a viable commercial arrangement with another international seed breeder. Based on the evidence of Van Rooyen, Robertson and Suter, Pannar would be in a position to discuss [(...)] potential collaborations with both Syngenta and Dow. Syngenta and Dow both have international capabilities in seed

[236] See *inter alia* Van Rooyen witness statement, paragraphs 38 to 42.

breeding and advanced breeding technologies, [...], and both have ongoing interests in pursuing a partnership with Pannar.

263. Furthermore, it is clear that the merger agreement with Pioneer has been preventing Pannar from acting on potential alternative strategies to address its weakening market position, and furthermore that this has been the situation for some time.

264. We again emphasise that it is irrelevant for the determination of the relevant counterfactual whether Pannar for commercial reasons, including a higher purchase price, may prefer a merger with Pioneer to any other outcomes. It is plausible that an acquiring incumbent firm in a "three-firm" market would be willing to pay a significant premium over fair value to avoid future competition (also see paragraph 229 above).

265. We conclude that there is no reason in this case not to accept the status quo as the relevant counterfactual against which the effects of the proposed merger should be determined.

Unilateral effects

266. As a coherent framework for the assessment of the competitive effects of the proposed merger, both Waehrer and Smith with merger simulation modelling predicted the unilateral price increases as a result of the proposed merger. This merger simulation predicts the equilibrium effect of the competitive interaction of Pioneer, Pannar and Monsanto in the market. Given that the various maize seed products are differentiated the prices of Pioneer, Pannar and Monsanto may not all move in the same direction. Therefore, in order to assess the overall effect on consumer welfare of the price changes that result from this transaction, it is necessary to analyse these effects on an average of the individual prices in the market. Waehrer and Smith replicated the results presented in each other's reports, with some limited exceptions.[237]

267. As explained under the section on market definition, Waehrer however was of the view that the *"Irrigation Market"* should be excluded from the unilateral price effects modelling i.e. Waehrer modelled the effects for the "non-irrigation" market. As stated in paragraph 211 above, Waehrer did not quantify the price effects as a result of the proposed merger in a potential *"Irrigation Market"* since he was of the view that Pannar will soon cease to be a competitive constraint for hybrids adapted for the "*Irrigated Region*".

[237] These exceptions are: Tables 8 and 12 of Smith's supplementary report. See Exhibit 13, paragraph 10.

268. The crux of the two experts' further disagreement relates to the model inputs used to generate the price effects results, specifically (i) the appropriate diversion ratios to use; and (ii) the appropriate GM trait fee and penetration rate to use for the purpose of calculating the implied average trait fee.[238] We deal with the issue of trait penetration under efficiencies below.

Merging parties' view

269. Waehrer based the carving-out of the "Irrigation Market" from the price effects modelling on the following arguments:

(i) he relied on Hodge's view that the ultra-early hybrids used in the Irrigated Regions constitute a separate relevant product market (we have dealt with this issue above under market delineation);

(ii) "*Pannar will [...] for hybrids adapted for the Irrigated Region*".[239] The basis for this is that Monsanto has entered the market for Irrigated Region hybrids and that [...]. Waehrer stated that "*[t]he merger does not change the fact that for Irrigated Region farmers, [...]*"[240]; and

(iii) the merging parties' market shares in the Irrigation Market are not a reliable indicator of the diversion ratios between them because "*[c]urrent diversion between Pioneer and Pannar will be much lower than might be inferred from market shares*".[241]

270. In relation to Waehrer's view that the current market shares would not be a reliable indicator of diversion ratios, he based this on the following factors:

(i) Monsanto had very recently entered the Irrigation Market i.e. in the 2010/11 season and had won market share at Pannar's expense.[242] This Waehrer based on Van Rooyen's evidence; and

(ii) Monsanto had won and Pannar had lost significant market share in the most recent 2010/11 season. This he based on the data contained in Exhibit 28.[243]

Assessment

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[238] Exhibit 13, paragraph 11.
[239] Paragraph 60 of Waehrer's expert report.
[240] Waehrer expert report, paragraph 60.
[241] Waehrer Presentation: Exhibit 34, slide 8; transcript: Waehrer page1845.
[242] Transcript page 1850.
[243] Transcript page 1849; also see Exhibit 28.

271. The two experts agreed on the predicted price effects in relation to the entire South African hybrid seed market i.e. including both the irrigation and non-irrigation regions. They agreed that if Waehrer's model is applied to this market the model, excluding any efficiencies, predicts an average price increase as a result of the merger of approximately 12%. This is an average of price increases by Pioneer of approximately 19%, Pannar of 19% and Monsanto of 6%.[244] The predicted average price effect of the proposed merger in the overall market thus is significantly above a 5% SSNIP[245] threshold.

272. We note that these unilateral price effects are not, as suggested by Hodge, "*short-term*" price effects.[246] These effects are long-term and their harm to consumers would be continuous. Hodge under cross-examination ultimately conceded that although unilateral price effects are a once-off adjustment in the price it is a "*once-off level change that remains moving forward*" and represents "*a shift to a different curve*" which "*remains above the counterfactual curve*".[247]

273. We further note that the merging parties have in recent years on average increased the prices for their best selling hybrids[248] at rates generally well above inflation.[249]

274. We have already assessed the merging parties' contention that there is a separate relevant product market for "*ultra-early hybrids used in the Irrigated Regions*" and found that to be unjustified (see paragraphs 93 to 143 above).

275. We have also already dealt with the entry of Monsanto in the irrigated market segment in paragraphs 134 to 137 above. In short, the evidence shows that Monsanto did not enter this segment only recently, as alleged by Waehrer and Van Rooyen, and did not over a period of more than one season win market share in this segment from Pannar.[250]

276. Furthermore the seasonal data as put up by Hodge in Exhibit 33 show that the "*irrigated-region market by area of adaptation*" declined significantly in terms of total volumes (80 kg sales units) from 2009/10 to 2010/11. Both Pannar and Pioneer lost

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[244] Waehrer Presentation Exhibit 34, slide 15; transcript: Waehrer page 1820; Smith's report paragraph 278, Table 32.
[245] A small but significant non-transitory increase in price.
[246] Hodge Presentation: Exhibit 25, slides 4 and 5.
[247] Transcript: Hodge page 1555.
[248] In terms of sales volumes.
[249] At the Tribunal's request the merging parties submitted pricing information of respectively Pannar and Pioneer over four seasons (2007 to 2010) of their top seven and bottom seven hybrids (including both GM and non-GM products). See Exhibits 39.1 (Pannar's prices) and 39.2 (Pioneer's prices) which indicate both the real list price increases and the real net price increases.
[250] See Exhibit 28.

significant volumes from 2009/10 to 2010/11. Monsanto in this period in total [...] (i) [...] volume than the total volume lost by Pioneer; and (ii) less than [...] of the total volume loss of Pannar. Monsanto accordingly clearly did not acquire all the units that Pannar lost.[251]

277. It was further pointed out to Waehrer by the Commission's counsel that Pannar very recently in its strategic pricing documents[252] still identified Pioneer hybrids as the principal competitors of Pannar's hybrids sold in the irrigation market segment. This implies that in Pannar's strategic view of the world, which we certainly have no reason to doubt, the diversion ratios between it and Pioneer in this market segment would be much greater than that suggested by the market shares.

278. Waehrer then suggested that the diversion ratios based on the evidence of Pannar's strategic comparison document would be unrealistically high but could submit no evidence to refute Pannar's own view of its main competitor in the irrigation market segment.[253]

279. When asked whether market shares or Pannar's price comparison document is the better basis for the determination of diversion ratios, Waehrer conceded that the price comparison document is a more realistic basis: he stated "*I don't think I say better I think I say more realistic*".[254]

280. We have extensively dealt with Pannar's future prospects in the section on the counterfactual to the proposed merger (see paragraphs 198 to 265 above). There is no reason to accept that Pannar's alleged demise in the irrigation market segment is imminent. Pannar at this stage, as conceded by Van Rooyen, is still the undisputed market leader in this market segment (see paragraph 139 above). Furthermore, Hodge conceded that "*it is fair summary*" that Pannar's exit from this market segment is not imminent because it will at least take a few years.[255]

281. We therefore find that the merging parties' exclusion of the "*Irrigation Market*" from the price effects modelling is unjustified. Waehrer did not only exclude this market from the application of his model, but also did not do any coherent assessment of the unilateral price effects of the merger in the Irrigation Market itself, as a potential separate relevant market (also see paragraphs 131, 143 and 211 above).

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[251] See data contained in Exhibit 33.
[252] See Exhibit 6.
[253] Transcript pages 1851 to 1854.
[254] Transcript page 1851.
[255] Transcript page 1433.

282. We therefore conclude that the unilateral effects modelling illustrates that, absent any claimed efficiencies, the proposed transaction is likely to give rise to very significant anticompetitive unilateral price effects in the overall South African hybrid maize seed market. The merging parties' claimed efficiencies are dealt with below.

Removal of an effective competitor

283. From the market share analysis in paragraphs 147 to 150 above it is evident that Pioneer and Pannar have significant market shares at both the level of maize seed breeding and commercialisation. This already suggests that they are potential significant competitors of one another. Furthermore, Pannar itself in its recent strategic documents[256] identified Pioneer as its closest rival for many of its hybrids (also see paragraph 123 above). Pannar also is still the market leader in the irrigated market segment and its alleged demise in this segment is not imminent. Smith furthermore indicated that there are significant overlaps between the merging parties in respect of individual customers served by both of them.[257] This evidence was not contested.

284. Thus we conclude that Pioneer and Pannar are significant and close competitors and that the proposed transaction therefore would result in the removal of an effective competitor.

Merging parties' claimed efficiencies

285. The merging parties claimed that the proposed transaction would result in two main categories of efficiencies: (i) cost savings from Pannar accessing Pioneer's global licensing agreements with Monsanto in respect of GM traits; and (ii) dynamic efficiencies from merging their genetic pools and breeding technologies.

286. We shall below first deal with the claimed trait fee efficiencies and thereafter with the dynamic efficiencies.

(i) Trait fee efficiencies

Merging parties view

287. The merging parties contended that the consummation of the proposed transaction would trigger a decrease in the per unit trait fees in terms of Pioneer's trait licences since

[256] See Exhibit 6.
[257] Smith supplementary witness statement, paragraphs 77 to 79, including Table 10.

Pannar will become entitled to the low trait fees that Pioneer pays to Monsanto under its international licence (also see paragraphs 62 and 92 above).

288. Waehrer stated that although the trait fees paid by Pannar to Monsanto on the sale of Pannar branded maize seed is not a production cost efficiency, it does impact pricing decisions on Pannar branded seed in the same way as a production cost efficiency would. Waehrer further pointed out that the transfer of Pannar to Pioneer's trait licence would cause a [...] decrease in Pannar's average incremental cost and such a [...] reduction in incremental costs will, all else being equal, substantially lower the profit-maximizing price on Pannar's branded maize hybrids.[258]

289. According to Waehrer's calculations in relation to the entire hybrid maize seed market in South Africa (i.e. including both the irrigation and non-irrigation regions), the result of setting off these trait fee savings against the modelled average price increase as a result of the proposed merger is a fall in the indicated average price increase from 12% (see paragraph 271 above) to a 3,9% predicted average price increase.[259] For this result Waehrer however did not use Pannar's current trait penetration rate as model input, but a forecast of the rate for the 2013/14 season. We deal with the latter aspect in further detail below.

Commission's view

290. The Commission contended that Waehrer's quantification materially overstates the potential trait fee savings as a result of the proposed deal and was furthermore of the view that these savings are not merger-specific efficiencies.

Assessment

291. The trait fee efficiencies claimed by the merging parties might be considered pecuniary efficiencies, arising as a result of Pioneer's bargaining leverage, or volume discounts, and not any saving in resource. As stated above, Smith contested Waehrer's calculation of these efficiencies.

[258] Expert report, paragraph 71.
[259] Waehrer Presentation Exhibit 34, slide 15.

292. The choice of trait penetration input figure used in the merger simulation modelling - i.e. whether one selects the actual figure for 2010/11 (as Smith contended one should) or a forecasted 2013/14 figure (as used by Waehrer) - has a critical impact on the estimated unilateral price increases net of the trait fee savings. The significance of this is clear from Waehrer's unilateral price effects results as stated in paragraph 289 above.

293. In relation to the forecasted 2013/14 Pannar trait penetration rate used by Waehrer, we note that it is not based on a calculation that Pannar made in the ordinary course of its business, and is also not contained in the discovered strategic merger documents. It is in fact a calculation that Pannar made at Waehrer's request. He testified that "*[w]e asked Pannar for a forecast of their trait penetration rate and that was the document that you saw was what they gave us*". He further testified that this forecast was made "*sometime in early this year*"; and "*I did not go back and check whether or not previous forecasts, if they did have previous forecast of trait penetration rates, were accurate*".[260]

294. Internationally competition authorities treat evidence of the above nature with scepticism. The USA Horizontal Merger Guidelines make this point clearly by stating that "*[p]rojections of efficiencies may be viewed with scepticism, particularly when generated outside of the usual business planning process. By contrast, efficiency claims substantiated by analogous past experience are those most likely to be credited*".[261]

295. Furthermore, the merging parties themselves highlighted Pannar's very poor track record in accurate forecasting. The merging parties namely put up an exhibit, Exhibit 10, with which they sought to demonstrate Pannar's history of poor forecasting ability in relation to its maize seed sales.

296. Waehrer further conceded that since making this forecast Pannar has [...].[262]

297. Thus not only are Pannar's future trait penetration rates uncertain, but also the GM trait source that it would actually use, as well as the trait fees that would be payable [...]. As stated in paragraph 304 below, these traits fees can be expected to be lower than the [...] fees paid by Pannar to Monsanto (in comparison with that paid by Pioneer to Monsanto, which is the very basis for this efficiency claim).

298. Waehrer conceded that "*[i]t probably means that there is some revision, I know that in the coming years that Pannar [...], but I don't know how it would have changed their trait*

[260] Transcript pages 1861 and 1862.
[261] See paragraph 10 (page 30) of Guidelines.
[262] Transcript page 1865.

penetration rate".[263] It is clear that Waehrer did not consider [...] in arriving at his estimated unilateral price effects which used Pannar's forecasted 2013/14 trait penetration rate as input.

299. This is an important fact since Waehrer's modelling is premised on the proposition that the trait fee savings constitute an ongoing saving which counteracts the ongoing unilateral price effects of the merger from year to year for an indefinite period. Accordingly it is particularly anomalous that Waehrer assumed a counterfactual of Pannar's ongoing use of Monsanto traits [...].[264]

300. Furthermore, Waehrer by inconsistently using the input data i.e. 2010/11 figures for all model inputs except for the forecasted 2013/14 Pannar trait penetration rate, introduced a range of incalculable uncertainties in the merger simulation modelling since these inputs are interrelated and impact on one another. Waehrer namely did not update any of the other inputs used in his modelling to 2013/14; he used Pannar's and Pioneer's current costs, prices and sales volumes, as well as Pioneer's current trait penetration rates. We note that it would be a nearly impossible exercise to forecast all these inputs values for 2013/14 and would in all likelihood render the whole modelling exercise meaningless.

301. When confronted by his inconsistent use of inputs in his modelling, Waehrer stated that one is "*forced to make use of current inputs where that is the most consistent way of using it. But I had to make a choice. Either I have a model that grossly underestimates the effects of the trait fee efficiency and then I would run it all 2010 numbers, or I make an adjustment to this one number that I know makes a very large difference to the results. It's a more realistic measure of the trait fee efficiency in the near to midterm and then I go and I check to see if the difference that it creates in [the] calibration would seem to make a significant difference to the result ...*".[265]

302. For the above reasons we find Waehrer's departure from consistently using 2010/11 inputs in the merger simulation modelling to be unsound and an unjustified attempt to lower the predicted unilateral price effects of the proposed merger.

303. Furthermore, we find that the claimed trait fee efficiencies, at least in part, are not merger-specific. The evidence is clear on the score that Pannar has already [...]. Thus if not for the proposed merger, Pannar would have [...], at least in part. The exact extent [...] however is unknown.

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[263] Transcript page 1863.
[264] Transcript page 1865.
[265] Transcript pages 1872 and 1873.

304. One can furthermore assume that the trait fees payable by Pannar under the [...] than the [...] trait fees it has until now paid to Monsanto, given the fact that it was commercially viable for Pannar to enter into this [...]. The [...] trait fees payable by Pannar to Monsanto is common cause: they are repeatedly highlighted by the merging parties themselves in their various submissions and are the very reason for the claimed post-merger trait fee efficiencies.

305. Waehrer's assumption that Pannar would indefinitely have continued to pay the [...] trait fees to Monsanto is therefore incorrect. Waehrer tried to justify this by saying that *["..."]*.[266] One of his reasons for saying so was that *["..."]*.[267]

306. We however have no reason to doubt Soper's testimony that [...].Furthermore, we do not find it plausible that Pannar would have [...] if it did not offer it significant prospects.

307. We further point out that the merging parties entirely bear the onus of quantifying and proving that the claimed trait fee efficiencies are specific to this merger. It therefore does not avail Waehrer to argue that the trait fee savings attributable to [...] is "*highly speculative*". He made no attempt to quantify the latter savings and therefore, as an expert witness, presented only the results which would be most favourable to the merging parties' case.

308. Thus we conclude that Waehrer, by ignoring the potential trait fee savings attributable to [...], did not sufficiently discharge the onus of quantifying the trait fee efficiencies that are specific to the merger.

309. Waehrer's claimed trait fee efficiencies are thus not only overstated, because they in part are not merger-specific, but his modelling methodology in using a forecasted figure for only one of many model inputs, which figure is furthermore questionable since it was produced outside of Pannar's usual business planning process, is unsound.

(ii) Dynamic efficiencies

310. The expert witnesses of the merging parties and Commission disagreed on the magnitude, likelihood and timing of the claimed dynamic efficiencies, as well as on the extent to which the claimed efficiencies are merger-specific.[268]

Merging parties view

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[266] Supplementary expert report, paragraph 23.
[267] Transcript page 1873.
[268] Exhibit 13, paragraph 12.

311. According to the merging parties the proposed transaction would allow the merged entity to realize significant efficiencies through increased innovation in two ways. First, the merged entity will be able to combine the germplasm pools of the two individual firms which will increase the diversity and complementarity of maize genetics available to the combined firm. Second, the merged entity will be able to apply Pioneer's advanced breeding technologies to that larger and broader germplasm breeding effort. According to the merging parties, this will enable substantial performance gains to be made in terms of their breeding program. In particular, this benefit will improve the process of identifying optimal genetic combinations and accelerate the processes of discovery, testing and commercialisation.

312. Hodge's evidence in regard to the dynamic efficiencies related mainly to certain current joint Pannar-Pioneer field trials indicating the yield performance of combined hybrids relative to the individual parties' established commercial hybrids. These joint trials commenced with the exchange of inbred lines in early 2008. Hodge, more specifically, considers [...] combined hybrids of which [...] have progressed to the so-called R4 phase of research. His analysis shows (i) the benchmarked yields of the comparator hybrids of Pioneer and Pannar, indexed to a base of 100; and (ii) the relative yield advantages of the joint Pioneer-Pannar hybrids in the Eastern, Western and overall dry land regions.[269]

313. Hodge submitted that these preliminary results strongly indicate the likelihood that the merged entity's combined hybrids will significantly outperform many of the existing Pioneer and Pannar hybrids in either a specific region or across all regions. He further contended that in some instances they display dramatically superior yield gains well in excess of 15% and therefore provide compelling evidence that the merger will deliver substantial benefits in the combination of genetics between the parties.[270] He further asserted that the trial results provide a range of yield gains against existing hybrids "*of up to 25% in some instances*".[271] He consequently assumed a range of 5% to 15% in yield improvements as a result of the proposed merger.

314. He furthermore claimed that the dynamic efficiencies will dwarf any potential negative "short-term" pricing effects (see paragraph 272 above) that may arise, based on either a total welfare standard or a consumer welfare standard. By assuming a minimum yield gain of 5% as a result of the proposed merger, Hodge estimated a very considerable total annual

[269] Expert report, paragraphs 101 to 103.
[270] Expert report, paragraph 103.
[271] Expert report, paragraph 150.3.

welfare gain. By further assuming that seed companies secure a [...] of the value created, the assumed 5% yield gain similarly results in a very significant farmer welfare gain.

Assessment

315. The efficiency claims of the parties to a merger must meet three criteria, namely they must be (i) likely; (ii) timely; and (iii) sufficient to prevent a substantial prevention or lessening of competition.[272] This Tribunal has always held that an accurate reading of the Act requires "*a high standard for establishing possible countervailing efficiency gains*", which must offset the efficiency sacrificed by the lessening of competition. Merging parties' efficiency claims furthermore must be quantified, verifiable by reasonable means and must be a direct consequence of the merger under consideration. The merging parties bear the onus of demonstrating this.[273]

316. In the following section we shall assess the assumptions on which Hodge based his dynamic efficiency and welfare gain findings.

317. The evidence has shown Hodge's assumptions to be either grossly exaggerated or totally unrealistic, as explained below:

(i) alleged yield gains against existing hybrids *of up to 25% (see paragraph 313 above)*

Closer scrutiny at the hearing of the merging parties' joint trial results on which Hodge based his findings showed that his reference to a 25% potential yield improvement was an extreme figure as it found support in only one result from a comparison of one trial hybrid to one existing hybrid for one year in one region. This was conceded by Hodge.[274]

(ii) an assumed range of 5% to 15% in yield improvements across all hybrids *(see paragraph 313 above)*

Hodge assumed that a minimum yield gain of 5% will be achieved as a result of the proposed merger not in regard to only certain hybrids of the merging parties, but across all the hybrids of the entire merged entity. This is not a realistic assumption. We deal below more specifically with the issue of an assumption of a minimum of a 5% yield gain.

(iii) gains achieved in a single year

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[272] See, for example, the UK *Merger Assessment Guidelines*, paragraph 5.7.4.

[273] See, for example, the Tribunal decisions in the mergers involving *Trident Steel* and *Dorbyl*, case no. 89/LM/Oct00; and *Tongaat-Hulett* and *TSB*, case no. 83/LM/Jul00. Also see the Horizontal Merger Guidelines of the USA and EU.

[274] Transcript page 1556.

Hodge further assumed that the yield gains will be achieved in a single year. The latter assumption is also unrealistic. Soper in regard to the joint trial results indicated that "*should the transaction be approved, the combined company will be able to offer these improved maize hybrid products as early as [...], for planting in the [...] growing season*".[275] Ignoring effort expended in the past, this is a two-year project, if taken to the stage where maize is harvested. Furthermore, these "improved products" through the joint trials have already been in the process of development some years prior to the merger filing (see paragraph 312 above). We deal below with the fact that the benefits flowing from the merging parties' current joint trial results are not merger-specific.

318. Hodge's assumption of at least a 5% yield improvement as a result of the merger also turned out to be an extreme exaggeration. The trial results at best show that [...] new hybrids might be produced. In stark contrast to Hodge's assumption, Soper's evidence was that the industry average yield gain is in the region of 1% per annum and that Pioneer, with advanced breeding technologies, strives towards 2%.[276] In his witness statement he confirmed that a yield improvement of 1.5 to 2.0% is currently the industry standard in North America.[277]

319. Furthermore, Van Rooyen stated that South Africa typically has lower yields than the USA and other leading countries due "*to some extent ... to less favourable growing conditions in terms of climate and soils*".[278]

320. Thus a 5 to 15% yield gain assumption - achieved in a timely fashion - is unsupported by the realities in the market and is therefore wholly fanciful. Hodge's calculation that a 5% yield gain at prevailing maize prices would result in a value for the economy in excess of R800 million[279] (in a given year) therefore is also fanciful.

321. A further flaw in Hodge's analysis is that it makes no provision for the yield gains that Pioneer and Pannar would individually have achieved without the proposed transaction. In the case of Pioneer one would expect that these gains would be significant since it does not face the drawback in terms of efficient access to advanced breeding technologies as does Pannar, and furthermore it has its own proprietary locally-adapted germplasm.

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[275] Supplementary witness statement, paragraph 13.
[276] See Exhibit 21; transcript pages 1002 and 1003.
[277] Soper witness statement, paragraph 53.
[278] Van Rooyen witness statement, paragraph 20.
[279] Hodge's expert report, paragraph 142.

322. We find that an assumption that Pioneer and Pannar would not individually achieve yield gains is unrealistic. Hodge ultimately conceded that he made no provision for this in his analysis.[280]

323. We further point out that the benefits flowing from the current joint trials of the merging parties are not merger-specific. If the gains realised from current collaboration were merger-specific it would mean that the proposed merger had been implemented without competition approval. That is not the case. The material exchange agreement between Pioneer and Pannar predates the merger agreement of July 2009 and is independent of the merger. Van Rooyen confirmed that the joint trials were undertaken pursuant to a prior standard form material exchange agreement between Pannar and Pioneer.[281] Hence the joint trial yield gains are merely indicative of potential future efficiencies that may flow from a merger.

324. The above facts have implications for the time period in which merger-specific dynamic efficiencies may be expected.

325. Efficiencies must be achieved within a relatively short period of time to prevent a proposed merger from causing harm to consumers. For example, the European Merger Guidelines provide that "*[i]n general, the longer the start of the efficiencies is projected into the future, the less probability the Commission may be able to assign to the efficiencies actually being brought about*".[282]

326. In this instance the most immediate merger-specific dynamic efficiencies that could flow from the proposed merger would be the new hybrids that the merged entity may breed by crossings between one another's parental lines after the merger has been implemented. This would only be in a number of years due to the long time lapse before advancement to the final stage of seed commercialisation. Even with Pioneer's doubled haploid technology, the creation of new parental lines alone would take 18 months[283], and then the new parental lines still have to be crossed to generate a new flow of hybrids which must then be subjected to a five-year testing process in order to reach the final stage of commercialisation.

327. The above implies that any potential merger-specific efficiency lies beyond a five-year time horizon in the future. This time horizon is furthermore beyond the time period of

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[280] Transcript page 1565.
[281] Transcript pages 1239 and 1240.
[282] See paragraph 86 of *Guidelines on the assessment of horizontal mergers* (2004/C31/03).
[283] Transcript page 1033.

application of the price cap remedy proposed by the merging parties (see paragraph 346 below).

328. Any new varieties which might arise from the combination of Pannar and Pioneer germplasm are likely to take several years to emerge, such that any resulting consumer benefits are likely to arise only beyond the horizon of the counterfactual identified above. In order to assess the likely impact of these potential longer term benefits it is necessary to consider not only the most likely foreseeable counterfactual, but also more uncertain potential outcomes, which would include several alternative mechanisms which could also result in incremental innovation.

329. Thus we conclude that the efficiencies are distant and therefore not associated with a high probability of offsetting the competitive harm.

330. In paragraph 314 above we stated that Hodge assumed that the seed companies would secure only a [...] of the dynamic efficiencies created by the proposed merger. In the *Trident* case the Tribunal concluded that "*evidence of a pass through to consumers should be demonstrated*" where "*efficiencies demonstrate less compelling economies*".[284] This is consistent with the approach in other jurisdictions, for example, the USA Horizontal Merger Guidelines state that "*[t]he greater the potential adverse competitive effect of a merger, the greater must be the cognizable efficiencies, and the more they must be passed through to customers, for the Agencies to conclude that the merger will not have an anticompetitive effect in the relevant market*".[285]

331. We have found that the potential competitive harm of this transaction to customers is significant and therefore evidence of a pass-through of gains to consumers becomes highly relevant. However, the merging parties provided no evidence in support of their pass-through assumption. The only evidence in this regard is Schickler's generalisation that "*[i]n general, of the total amount of increased value created by improvements to Pioneer's seed, we realize approximately [0-50] percent. The other ... of the gains are realized by farmers, who increase their output and reap the rewards as additional income, and the food companies, meat producers, manufacturers, and consumers who buy and use their grain*".[286] No actual evidence of any past pricing conduct was provided.

332. Furthermore, we point out that the merger itself may affect the pass-through rate of gains to consumers. Given that this merger significantly reduces the level of competition in

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[284] Merger involving *Trident Steel* and *Dorbyl*, case no. 89/LM/OctO0, paragraphs 68 to 75 and 81.
[285] Section 10, page 31 of Guidelines.
[286] Schickler witness statement, paragraph 42.

the market by creating a post-merger duopolistic market structure, and given that the market is characterised by material demand inelasticity (see paragraph 25 above), it is possible that the post-merger pass-through to consumer could be lower than historic levels when there was greater competition in the market.

333. In relation to the pass-through of any potential efficiency gains to consumers, given the significant competition concerns, we find that the merging parties have not substantiated their assumed level of pass-through of benefits to farmers.

334. In summation, we find that Hodge's dynamic efficiency calculations are grossly overstated. It follows that Hodge's quantification of potential welfare gains as a result of the proposed merger are also grossly overstated since they rely on the same assumptions. Furthermore, the benefits of the current joint Pioneer-Pannar trials do not meet the requirement of merger-specificity and the merger-specific dynamic efficiencies that may flow from the proposed transaction lie beyond a five-year time horizon. The assumed rate of pass-through of benefits to consumers has also not been supported by evidence of past actual firm conduct. Based on these considerations, we find that the likely significant unilateral anticompetitive effects that result from this merger are not offset by cognizable efficiencies. As stated, the merging parties bear the onus of providing compelling evidence of efficiencies and they have not done so.

Coordinated effects

335. The economic experts disagreed on the likelihood of post-merger coordination between the merged entity and Monsanto as the only two significant firms left in the South African hybrid maize seed market(s) in a post-merger world.

Merging parties view

336. Waehrer was of the view that the characteristics of the South African maize seed industry make coordination between market participants very difficult if not impossible to achieve, and thus make coordinated effects from the transaction unlikely. The reasons for this according to Waehrer is that maize seed sales occur each year in a relatively short time period and, in addition, there is a lack of transparency of output, shares and prices during this period which makes enforcement of an implicit or explicit cooperative agreement unlikely to be effective.[287]

[287] Expert report, paragraph 3 and pages 5 to 13.

337. He further advanced the following arguments for the South African maize seed industry specifically not being vulnerable to coordination on price or discounts:

(i) the shortness of the selling season would make it unlikely that deviations or cheating on a coordinated outcome would be detected;[288]

(ii) seed purchases are generally large and occur at infrequent intervals;[289]

(iii) "*leapfrogging*" innovation is ever-present;[290]

(iv) price transparency is lacking, specifically in regard to effective prices since discounts are common in the industry; and

(v) there is a high degree of product differentiation, i.e. maize seed companies in South Africa offer a wide range of maize seed types at an equally wide range of prices.

338. Waehrer further argued that nothing about the transaction would increase the level of price transparency.[291]

Commission's view

339. Smith was of the view that the proposed merger significantly increases the likelihood of coordination, primarily by reducing the number of major competitors to two players, and by creating greater symmetry in terms of the merged entity's and Monsanto's product portfolios, size and scope, and by raising barriers to entry for new competitors.[292]

Assessment

340. Given that we have concluded that this merger raises significant concerns from a unilateral price effects perspective which are not offset by cognizable efficiencies, there is no need for us to conclude on the issue of co-ordinated effects since it does not alter our decision. We however do note the following:

341. The merger itself by permanently changing the market structure to that of a duopoly would significantly increase the susceptibility of the market to tacit coordination. Suter tellingly summarized the difference between an oligopolistic and duopolistic market

[288] Paragraphs 20 to 22 of expert report.
[289] Paragraph 24 of expert report.
[290] Paragraph 25 of expert report.
[291] Paragraph 32 of expert report.
[292] Expert report, paragraph 11.

structure as follows:[293] "*[w]ithin a duopoly you only need ... in commercial terms ... to have your eyes in front of you. In an oligopoly you need eyes in your back also and it is a much more complex operation ...*".[294]

342. This change form an oligopolistic market structure to a duopolistic structure in particular would affect the (i) relative size, capabilities and cost structure of the merged entity in relation to Monsanto i.e. the merger would bring about a merged entity which is far more similar to Monsanto in terms of its product portfolio, size, cost structure and scope than an individual Pioneer and Pannar; and (ii) the fact that there would be only two significant firms in the market after the merger would significantly increase the market transparency from both a price and volume perspective. This would make post-merger monitoring of a tacit agreement and detection of deviation easier.

343. In terms of marketing practices, the large players in this market mostly sell their seeds through their own dealers directly to farmers. This means that they have direct, personal contact with the farmers. The evidence furthermore shows that farmers "multi-source" and talk to different suppliers, which facilitates information exchange.[295]

344. In relation to an individual customer the proposed merger would therefore remove all uncertainty as to who has "cheated" on an agreed outcome. For example, after this merger Monsanto, if it lost share in terms of sales to an individual farmer or sales in a specific geographic area, could confidently assume that the merged entity had "cheated" and discounted to gain that share. Dealers would thus become aware if the remaining firm in the post-merger market structure provided discounts on a local basis and, could further observe any shift in sales through a change in its own sales. Any secret discounts would be obvious if the sales of one of the firms reduced and furthermore would directly become known through the dealers' interaction with the individual farmers concerned.

345. We further note that Waehrer under cross-examination conceded that if there was coordination in the maize seed market in South Africa then "*retaliation is not likely to be difficult*".[296]

Merging parties' tendered conditions

346. The merging parties proposed a set of conduct remedies aimed at addressing the competition issues. These in essence were:[297]

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[293] Although he said this in a potential entry context, it is similarly relevant in a coordination context.
[294] Transcript pages 367 and 368.
[295] Transcript: Van Rooyen page 1203.
[296] Transcript page 1889.

(i) a three-year price cap on Pannar products only:

The parties undertook that, for a period of three sales seasons immediately following the transaction, the annual increase in the prices of all the Pannar maize hybrids (GM and non-GM and the single OPV[298]) in South Africa available for sale in commercial quantities and all current commercialised Pannar OPVs in South Africa on the Date of Closing will not exceed the CPI published one month prior to advertisement of Pannar's prices.

This commitment does not apply to any new maize products not available for sale in commercial quantities on the Date of Closing.

(ii) the licensing of plant materials to third parties:

The merging parties undertook to negotiate in good faith to make available and license the plant materials in the Genetic Material List[299] (i.e. a list of 12 maize inbred Pannar lines[300]), which it has a right to license, to public institutions, as well as to each of Dow and Syngenta, in South Africa on a non-exclusive and perpetual basis, subject to certain terms as agreed upon by the parties.

In the case of the public institutions, the licence would include the right to sub-license and/or commercialise any inbreds so developed solely for use in South Africa that may be a consequence or outcome of the public institutions' breeding activity under the licence.

In the case of Dow and Syngenta, the licence would not include the right to sub-license any genetic material developed as a consequence of either Dow or Syngenta's breeding activity under the licence.

The licence would permit the public institutions, as well as each of Dow and Syngenta, in South Africa to cross the licensed plant material with non-Pannar lines to create breeding populations for use in South Africa.

However, no inbred derived from such breeding population might contain more than 50% Pannar germplasm based on pedigree.

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[297] For a full set of these remedies, see the merging parties' submission to the Tribunal via email on 29 September 2011.
[298] Merging parties' heads, paragraph 136.
[299] The conventional Pannar maize inbred lines in South Africa identified in Annexure A to the merging parties' tendered conditions.
[300] The names of these 12 Pannar inbred lines were claimed as confidential by the merging parties.

347. We shall below first deal with the price cap remedy advanced by the merging parties, and thereafter with the licensing remedy.

Price cap

348. The first, and a fundamental, problem with the price cap remedy put forward by the merging parties is that it relates only to the post-merger prices of Pannar's maize hybrids and not that of the Pioneer (as the other part of the merged entity) as one would have expected and as is customary in price cap-type merger conditions.

349. This restriction renders the merging parties' undertaking of very little value since in the post-merger world the merged entity would have a significant incentive to more strongly produce, promote, distribute and sell all the merged entity's products that are not covered by the condition, namely all the Pioneer maize hybrids. To illustrate the significance of this restriction we provide the following contextualisation: the portion of the merged entity's products that would not be covered by the condition make up [70-80]% if the price cap only applies to Pannar's non-GM products and [40-50]% if the price cap restriction applies to all of Pannar's products.

350. Maize farmers, and ultimately consumers, therefore for three years after this merger and beyond[301] could still bear the brunt of significant price increases of all Pioneer branded seed, coupled with reduced promotion, distribution, marketing and customer service activities in respect of the Pannar branded seed. This would create exactly the type of market distortions associated with behavioural remedies that one wants to avoid in merger control (also see paragraph 361 below).

351. On this basis alone the proposed price cap is clearly not a workable remedy.

352. A second issue is that the price cap, if it is to be an effective mechanism of price control, would have to apply even-handedly to all new products that the merged entity would introduce to the market during the entire period for which the price cap applied.

353. The third problem with the tendered price cap condition is that it has a very limited duration i.e. only three sales seasons. Considered in isolation from any additional structural remedy it therefore is of extremely low benefit to farmers and to consumers since it would only delay, by three sale seasons, the anticipated permanent unilateral price effects of the merger. To cure this defect, if viewed in the absence of a workable structural

[301] Beyond three sales seasons these price increases relate to both Pioneer and Pannar products.

remedy, the time period of application of the price cap remedy would have to be open-ended, which is undesirable and unpractical from an enforcement perspective.

354. Given this limited time period of application of the tendered pricing condition, it would only have value if meant as an interim arrangement (provided that it were applied to all current and new products of the entire merged entity) until the entry into force of a different, additional remedy which addresses the structural concerns in this case. We deal with the structural issue below.

355. However, as highlighted in paragraphs 348 to 351 above, under the merging parties' proposed price cap condition the problem remains that the tendered remedy relates only to Pannar's seed products and not to that of the entire merged entity.

356. Furthermore, the price of maize seed is not the only parameter of competition in the maize seed market(s). As we have pointed out, commercial maize farmers in general tend to be price takers and therefore are insensitive to seed price increases (see paragraph 25 above). Based on the testimony of the factual witnesses other elements of competition in this market include *inter alia* the quality of products and service levels provided to maize farmers. The tendered price cap remedy does not address these issues. As stressed in paragraph 350 above, the proposed remedy, given that it only applies to Pannar's seed products, in fact gives the merged entity the incentive to reduce service levels associated with all Pannar seed products.

357. In conclusion: the merging parties' tendered price cap remedy would have been of some value if it extended to all current and future seed products of the entire merged entity (and not only that of Pannar) and if it was combined with an appropriate structural remedy, which has not been tendered. We deal below with the requirements of an effective structural remedy.

Licensing remedy

358. The guiding principle of any proposed merger remedy is that it must address the competition concerns raised by the merger under consideration and must restore the dynamic process of competition that would have existed but for the merger. In this case the competition concerns have their cause in a permanent structural change to the market(s) from a pre-merger oligopoly to a post-merger duopoly. Therefore in this context any proposal aimed at remedying the competition concerns brought about by the merger must be one of a structural nature.

359. In the section dealing with entry we emphasised that in a merger context potential new entry has to meet three criteria namely it must be (i) likely; (ii) timely; and (iii) sufficient in its magnitude, character and scope to restore the overall level of competition lost through the merger, in this case at both levels of the market – maize breeding and commercialisation.

360. As a standard and preferred rule the solution to any such structural competition concerns is the divesture of a business or business unit, assets and/or activities of one of the merging parties.

361. In merger regulation structural remedies are preferred to behavioural/conduct remedies because they are clean, certain and objective; they deal with the substantial lessening of competition and its resulting adverse effects directly and comprehensively at source by restoring rivalry; they are void of unwanted, unintended and costly distortions in market outcomes; and they require no ongoing monitoring and enforcement. The OECD summarises the international consensus in relation to remedies in merger control as follows: "*Most competition authorities have a strong preference for structural remedies in the form of divestitures. Given that mergers bring about structural, permanent changes in the market, a structural remedy frequently will be the most appropriate solution*".[302]

362. In the instant case a divestiture remedy more worthy of consideration by the Tribunal might for example have involved the divestiture of certain Pannar or Pioneer hybrid maize breeding and commercialisation operations, assets or products in South Africa.

363. International precedent exists in the agricultural seed markets of significant structural competition concerns remedied only by divestiture conditions. For example, in a sunflower seed merger in the EU involving *Syngenta* and *Monsanto* the European Commission ordered an extensive divestiture (and not mere licensing) relating to all of the target firm's (i) hybrids commercialised in two geographic areas (Hungary and Spain) in the preceding two years, as well as all the hybrids already under official trial for registration in the same countries; (ii) parental lines used to develop these hybrids; and (iii) pipeline parental lines then under development which had been fixed. The commitments included notably the right to use, cross, breed and license the offered parental lines, and to commercialise and license the resulting hybrids. The remedy furthermore included the divestment of certain assets, know-how and assistance in relation to seed production and commercialisation.[303]

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[302] OECD Policy Roundtable, Merger Remedies, 2003, page 8.

[303] See European Commission's decision of 17 November 2010 in the merger involving *Syngenta* and *Monsanto's Sunflower Seed business*; case no. COMP/M.5675, pages 134 to 148.

364. Similarly the US Department of Justice in the merger involving *Monsanto* and *Delta & Pine Land* required the divestment of *inter alia* Monsanto's Stoneville Pedigreed Seed Company, 20 proprietary DPL cotton seed lines, and other significant assets.[304]

365. Given the structural concerns raised by this proposed merger, and in the context of the above-mentioned international precedent, it is conceivable that a divestiture remedy may have provided a more workable solution to the identified concerns. No such remedy was suggested by the merging parties. As explained above, the merging parties instead opted for a "staggered" conduct remedy, consisting of a price cap of limited duration on only Pannar product prices, and the licensing, with certain restrictions, of certain maize inbred lines to potential entrants.

366. The crucial test of the adequacy of the licensing remedy would be that it addressed the structural concerns associated with the merger by enabling likely, timely and sufficient new entry[305] to restore the pre-merger level of competition in the spheres of both maize breeding and commercialisation (also see paragraph 172 above).

367. The first requirement of the licensing remedy is that it would have to ensure that any new entry is of a significant scale and scope to compensate for the competition lost as a result of the proposed merger.

368. In the section on the relevant counterfactual we have already concluded that there is no reason to believe that Pannar would not remain an effective competitor in the market absent the merger and every reason to believe that it would. We concluded that Pannar has several options at its disposal to arrest erosion of its market position should the proposed merger not take place (see paragraphs 230 to 265 above).

369. In a worst-case scenario context, Van Rooyen indicated that Pannar would still have a market share in the breeding market of approximately [...]% in five years time,[306] and the merging parties' own submissions indicated that Pannar's share in respect of commercialisation would fall more slowly, and not to such a low level.[307]

370. Although it is difficult for us to put a figure on the required size and scope of sufficient new entry, in this context a minimum of a [...]% market share in breeding (as suggested by Van Rooyen) and a higher market share in commercialisation would appear to be the bare

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[304] http://www.justice.gov/atr/cases/monsanto.htm.
[305] See, for example, paragraphs 7.2 to 7.7 of the *Merger Enforcement Guidelines* of the Competition Bureau of Canada (2011).
[306] Transcript page 1156.
[307] See Genesis report, paragraph 51.2.

minimum market share that any new entrant would require to compensate for the loss of competition as a result of the proposed merger.

371. We next shall consider the restrictions that the merging parties have put on their proposed licensing remedy. These restrictions are that:

(i) the remedy is limited to the plant materials in the Genetic Material List which, as stated in paragraph 346 above, contains only 12 inbred Pannar lines; and

(ii) the licensee may use no more than 50% of the Pannar germplasm in any parental lines arising from the breeding of the licensed lines.

372. If one compares the Pannar hybrid units sold in 2010/11 that are related to these 12 inbred lines to the total market sales, then these hybrids represent less than 5% of total market sales. We further point out that even this is not a fair comparison given the further restriction in terms of the proposed remedy on the use of the Pannar inbred lines by a potential new competitor.

373. Given the significant time delays from the start of any hybrid maize breeding activities to the final commercialisation of seed a further crucial issue is if the proposed licensing remedy would allow entry that is not only sufficient, but also timely. In the context of the above-mentioned price cap remedy of three seasons - if it was workable, which it is not given its other limitations – this means that entry of an sufficient scale and scope would have to be achieved within three seasons of the proposed merger.

374. However, the above-mentioned second restriction places significant constraints on the ability of any new entrant to engage in any meaningful breeding activity that involves recourse to Pannar's germplasm. The restriction therefore would also significantly delay sufficient entry at the final level of seed commercialisation, as explained in more detail below.

375. First, a potential entrant is prevented from using any two of the licensed Pannar lines directly, for crossing amongst themselves, either to produce the current Pannar hybrids related to these parental lines, or to produce other "single-crosses" of the sort produced for testing under the merging parties' trial.

376. Second, a potential entrant is even prevented from performing a simple single cross of a licensed Pannar line with a parental line owned by the potential entrant (which, by definition, would exclude virtually all locally-adapted germplasm).

377. Third, a potential entrant would not only have to develop new parental lines, incorporating at least half of its own germplasm in those parental lines (a process which would take multiple years and would necessarily involve the incorporation of at least 50% of non-locally adapted germplasm into each new parental line), but the potential entrant would only then have reached a stage at which it could cross those newly developed parental lines to create trial hybrids, which could then enter the roughly five-year trial process, for a remote prospect of potential advancement to seed commercialisation.

378. We further point out that the merging parties themselves have a very low success rate in advancing hybrids generated from simple crosses between their "best" lines.[308] The prospects of success for a potential new entrant, new to this market, and who is constrained to first develop and then to use parental lines which contain no more than 50% locally-adapted germplasm, therefore would be even more remote. Soper's evidence was that such new entrant would take 6-8 years, and likely far longer, to develop any new hybrids from such an exercise (in which new parental lines must first be developed, prior to any crossing can take place), with no revenues in the intervening years, and no commercialisation activities with which to exert a competitive constraint on the merged entity.

379. However, even more importantly, the merging parties' own witnesses point to the limited effectiveness of the licensing of germplasm lines in commercial practice.

380. Soper in regard to the general restrictions placed on the outlicensing of inbred maize lines stated that "*seed companies generally do not outlicense inbred maize lines with full rights to use those lines, without restriction, in future breeding efforts. Germplasm lines are the crown jewels of a seed breeding company, and therefore except in cases of major strategic benefit to both companies, a company with a promising inbred line will be unwilling to risk giving that inbred to a competitor with the unlimited ability to improve and breed with that inbred*".[309]

381. Schickler stated that "*... licensors such as Monsanto, which also compete with the licensees, have little incentive to provide their licensees with their "best" genetic material and a sufficient degree of freedom to operate with licensed germplasm to create truly competitive products. Based on my observations in the industry, companies that license*

[308] Transcript page 1059. Also see Exhibit 23, which indicates the percentage of joint hybrids advancing through the various stages of evaluation.
[309] Witness statement, paragraph 51.

germplasm generally do not make their best breeding lines, or finished hybrids, available to their competitors".[310]

382. Soper went on to question the ability of a firm that is reliant on in-licensed genetics to effectively compete in the market: "*companies that rely on in-licensed genetics are not able to achieve these innovative improvements, or even to keep up with their competitors. Therefore, they become increasingly less competitive*".[311]

383. Schickler articulated the problems associated with the in-licensing of inbreds in the context of effective competition as follows: "*[s]eed companies have tried to cope ... by in-licensing inbreds (parents) or finished hybrids from a larger maize seed company, which has typically been Monsanto. However, these types of licensing arrangements often do not allow the licensee seed company to breed and develop competitive new products, and thus remain competitive in the downstream commercial market*".[312]

384. Schickler furthermore was highly critical of the effectiveness in a competition context of any germplasm licensing regime: "*[f]urther, the financial terms involved in germplasm licensing generally restrain the ability of the licensee to have as much flexibility in making pricing decisions, thus drastically limiting its competitive effectiveness. Ultimately, this helps reduce the licensee to function as a distributor for the licensor rather than an independent breeder able to develop competitive and innovative new products. The economics of any seed company are very different for products based on owned versus licensed germplasm, and this reduces the ability of a licensee effectively to compete with companies that are able to breed from their own genetics to develop new maize seed products*".[313]

385. Van Rooyen explained the significance of a breeder owning its own proprietary germplasm as follows: "*Maybe a bit like owning the Coca Cola recipe, it gives you a lot more flexibility, you control your own destiny and really we've always been a research based breeding company in maize. It's totally different to actually licensing products in where you're at the whim of the guys that licence to you. You're really ... if you can control your own destiny and technology, in the past you've always been in control of your own destiny if you had your own genetics*".[314]

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[310] Witness statement, paragraph 29.
[311] Witness statement, paragraph 53.
[312] Witness statement, paragraph 28.
[313] Witness statement, paragraph 30.
[314] Transcript page 1122.

386. Even if a licensing condition were an appropriate remedy, and we find that it is not, the conditions under which the merging parties have offered these licenses are far too restrictive to allow any credible prospect of timely and sufficient new entry into the relevant market(s). Based on the evidence effective entry could not be achieved in the interim "window period" of three seasons that the price cap remedy (if it were workable, which it is not given its limitations) provides for.

387. In regard to the tendered additional licence to public institutions, we note that this does not address the core competition issues.

388. Therefore we conclude that the licensing of inbred lines is an ineffective tool to deter or counteract the anticompetitive effects created by the proposed merger since licensing would not allow timely and sufficient new entry into the markets under consideration.

389. The result of an ineffective remedy given the significant competition concerns raised by this merger is that maize farmers and ultimately the consumers of maize products would be harmed.

Public interest

OPVs

390. In paragraph 79 above we stated that it is common cause between the merging parties' and Commission's expert witnesses that hybrid maize seed constitutes a separate relevant product market from OPVs. According to Hodge "*[t]here are substantial differences in the characteristics of hybrid and OP maize. This severely limits both demand and supply-side substitutability, and as such these seeds place relatively little competitive constraint on one another*".[315]

391. We found no evidence that the proposed merger would have negative competition effects in the market for OPVs in South Africa. The evidence has shown Pannar to be a small player in the OPV market with an estimated national market share of less than 10%.[316] Pannar sells one OPV variety and licenses another OPV variety to a third party pursuant to a perpetual licence. This third party has an estimated national market share in OPV sales of [10-20]%.[317] Van Rooyen further confirmed that Pannar applies for government and municipal tenders for the supply of maize seed which often include some

[315] Genesis report, paragraph 8.2.
[316] Merging parties' heads, paragraph 148.
[317] Van Rooyen second supplementary witness statement, paragraphs 2.6.1 and 4.5.

quantities of OPV seed. Pannar's ability to supply OPV seed thus sometimes assists it in applying for such tenders.[318] Pioneer is not present in this market.

ACB

392. In paragraph 12 above we indicated that ACB was given the right to intervene in this matter on a number of public interest grounds, but that it at the hearing elected to limit its participation to the effect that a possible post-merger increase in hybrid maize seed prices would have on small-scale commercial and subsistence maize farmers in South Africa. ACB's arguments thus were premised on the assumption that there would be such a price increase, as advanced by the Commission. ACB did not itself deal with the likelihood or magnitude of price increases as a result of the merger, but merely the effects of such assumed price increases on the above-mentioned farmers.

393. As stated in paragraph 20 above, ACB called one witness, Mudhara.

Mudhara's evidence

394. Mudhara testified that there is no rigid divide between small-scale commercial and subsistence farmers, but a continuum between these two categories from pure subsistence farmers at the one end, who consume their entire maize output, to small-scale commercial farmers at the other end, who sell a portion of their maize output. He further testified that there are approximately one million households in South Africa that could be classified as subsistence farmers and approximately 200 000 small-scale commercial farmers.[319]

395. Mudhara stated that these farmers face "*a basket of challenges*", one of which is the affordability of inputs, including seed which is "*the starting point*" of any maize farming activity.[320] Maize seed, according to Mudhara, makes up a significant portion of these farmers' input costs, "*maybe up to 50%*" and they cannot reduce their input costs without it affecting their maize yields.[321] He further testified that these farmers' gross margins are "*quite thin*" which means that any significant change in their input costs "*will result in them actually not being viable*".[322]

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[318] Van Rooyen second supplementary witness statement, paragraph 4.8.
[319] Transcript pages 920 and 921.
[320] Transcript pages 922 and 926.
[321] Transcript pages 926 and 927.
[322] Transcript page 923.

396. He also testified that the availability of OPVs in terms of the stock that farmers have on their farms is decreasing and that they therefore are becoming more reliant on buying seed, including hybrid maize seed.[323]

397. Mudhara did not, from these farmers' perspective, in the event of maize seed price increases as a result of the merger, regard the saving of hybrid seed for future use as a sustainable solution. He said that these farmers are resorting to the planting of saved hybrid seed as a last resort even at current "*high*" seed prices and was of the view that this practice would increase in the event of further maize seed price increases as a result of the proposed merger. He explained that the problem is that whilst hybrid maize seed can be saved and planted in place of fresh seed, this practice significantly reduces the potential yield of the seed. He therefore did not regard the saving and using of saved maize seed over multiple planting seasons as an effective solution in avoiding potential post-merger seed price increases.[324]

398. He further testified that small-scale commercial and subsistence maize farmers cannot rely on the Government for assistance. He indicated that although the Government sometimes buys seed (and sometime provides it through "*extension services*") only a small percentage of farmers could rely on any assistance from government. Government assistance is in any event not available every year.[325]

399. Mudhara further stated that the 45% "*farm-saved*" seed that Van Rooyen referred to (see paragraph 403 below) is in part made up of hybrid seed. He also said that the same farmer may use some bought "fresh" hybrid seed and some saved hybrid seed.[326]

400. Mudhara was then asked to comment on the effect that a hypothetical 10% post-merger maize seed price increase would have on these farmers. His view was that given their small gross margins, some farmers would no longer be able to buy any seed. This would have dire consequences for the livelihood of these farmers who would then become vulnerable to food insecurity and hunger. According to Mudhara this would have larger implications since such persons would become dependent of social welfare, for example pensions and child support grants.[327]

Merging parties' view

[323] Transcript pages 924, 925 and 937.
[324] Transcript page 927.
[325] Transcript pages 923 and 924, as well as pages 930 and 931.
[326] Transcript pages 924 and 935.
[327] Transcript pages 925 and 926.

401. The merging parties did not dispute most of Mudhara's evidence, specifically that in relation to the characteristics of these farmers. However, they did rely on Hodge's view that maize seed price increases were less likely to occur in the small farmer sector, as well as certain views of Van Rooyen, as explained below.

402. Hodge submitted that a number of features of hybrid sales to small farmers[328] make anticompetitive outcomes even less likely than in the hybrid market more generally.[329] These are that Pioneer has a market share of less than 10% in this market in South Africa and Pannar an estimated [20-30]% market share, and furthermore that a significant portion of sales by Pannar for this segment occur through government tenders, which is not the focus of Pioneer. Schickler later confirmed that Pioneer did not participate in any government tender program.[330]

403. Van Rooyen submitted that of the seed used by small farmers, hybrid seeds account for approximately 15%, OPVs for approximately 45% and farm-saved seed for approximately 40% (also see paragraph 399 above).[331]

404. Van Rooyen further submitted that there is no law against small farmers saving hybrid seed and that the proposed merger will have no effect on the choice of seed.[332] He further said that regardless of whether or not the merger goes ahead, both merging parties advise small farmers, under certain circumstances, to buy hybrids because of the benefits to such farmers and that these farmers will continue to do so regardless of whether or not the merger is approved. He submitted though that the merging parties "*will not, and cannot, compel any farmer to purchase hybrids. No small farmer's livelihood can possibly be compromised by the merger*".[333]

405. Van Rooyen and the merging parties' counsel further stressed that although saved hybrid maize seed deteriorates rapidly in yield, it stabilises again and such saved seed can still have a higher yield than OPVs.[334]

Assessment

406. As stated in paragraph 392 above, the public interest issues raised by ACB are premised on the assumption that the proposed merger would lead to a small but significant

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[328] I.e. small-scale commercial and subsistence farmers.
[329] Hodge's supplementary report dated 05 September 2011, paragraph 10.
[330] Transcript page 1618.
[331] Second supplementary witness statement, paragraph 2.6.
[332] Second supplementary witness statement, paragraphs 8.3 and 8.4.
[333] Second supplementary witness statement, paragraph 8.5.
[334] Second supplementary witness statement, paragraph 28.Transcript pages 932 to 935.

increase in the price of hybrid maize seed. We have found that such price increases are indeed likely as a result of the proposed merger. The concerns of ACB therefore are "merger-specific" since they stem directly from the price increases likely to be brought about by the merger itself.

407. We further find that ACB's concerns fall within the ambit of public interest issues as defined in section 12A(3) of the Act since the small-scale commercial and subsistence farmers meet the criteria of "*small businesses*" and "*firms controlled or owned by historically disadvantaged persons*" in terms of section 12A(3)(c) of the Act. The merging parties did not dispute this during the hearing.

408. In terms of relative maize production the non-commercial farmers[335], according to Van Rooyen, are estimated to account for 13% of the planted area and 5% of the volume of maize produced in South Africa.[336] Van Rooyen further explained that the main priority for subsistence farmers is to produce enough food for their own use and that the main priority for small commercial farmers is to produce enough food for their own use, plus a surplus to take to market or sell.[337]

409. Therefore small-scale commercial and subsistence farmers collectively make a meaningful contribution to South Africa's overall maize production, and since this output is largely used to feed these farmers, their families and communities, it indubitably plays a very important role in the livelihoods of these South Africans. As stated in paragraph 394 above, there are approximately 1.2 million of these farmers.

410. From Van Rooyen's evidence it is furthermore evident that hybrid maize seeds account for approximately 15% of seed used by these farmers. From Mudhara's evidence it is clear that a portion of the 40% "farm-saved" maize seed used by these farmers is also hybrid seed. We however do not know what proportion of the saved seed is hybrid seed and what proportion is OPVs.

411. We can furthermore reasonably assume that these farmers after the proposed merger would use increasing volumes of hybrid maize seed given its yield advantages. This is confirmed by Van Rooyen (see paragraph 413 below).

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[335] I.e. small-scale commercial and subsistence farmers.
[336] Second supplementary witness statement, paragraph 2.1.
[337] Second supplementary witness statement, paragraph 2.4.

412. According to Hodge, pre-merger Pannar already advises small farmers, under certain circumstances, to purchase hybrids.[338] Hodge gave the following commercial rationale for this: there is "*[a] sound commercial reason*" for seed companies to supply hybrid seeds to small farmers "*aside from the pure profits from the sale itself is that one can both expand the market for hybrids and build a degree of brand affinity for farmers that are gradually upgrading their production*".[339]

413. Van Rooyen in relation to the increasing use of hybrid seed by small farmers stated that "*[b]ased on our experience over many years in South Africa and other countries in Africa, small-scale farmers are also keen adopters of hybrid seed and proven technologies and practices that will increase their yields and income.*[340] He further stated that "*[w]e expect that the volume of OPV maize sold will continue to decline as farmers switch to higher-performing hybrid varieties*".[341]

414. However, the merging parties contended that there would be no public interest effect as a result of this merger because hybrid maize seed provide higher yields than OPVs. Van Rooyen stated that "*increasingly the improved yields from hybrids are being appreciated and demand for them by small farmers*[342] *is growing. Hybrids have yield advantages over OPV's (almost never less than 35%) but they typically are more expensive than OPVs*".[343]

415. In relation to the saving and reusing of hybrid maize seed, Van Rooyen however conceded that hybrid maize seed generally realises its full potential only in the first year of planting. He submitted that saved hybrid seed deteriorates rapidly in yield before it stabilises again, sometimes by as much as 15% to 20%.[344]

416. Mudhara explained this decrease in the yield of saved hybrid seed as experienced by small farmers as follows: "*when you buy hybrid seeds, the potential goes down from the first year of growth, ... that's where the 100% potential is realised, assuming that the other factors are okay, like rainfall and management. In the second year, then you begin to realise a reduction, it's actually a further reduction in the yield that you can realise, regardless whether you do everything that is required ...*".[345] Mudhara further stated that

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[338] Hodge's supplementary report dated 05 September 2011, paragraph 6.2.
[339] Hodge's supplementary report dated 05 September 2011, paragraph 11.1.
[340] Witness statement, paragraph 21.
[341] Witness statement, paragraph 23.
[342] By this he means both small-scale commercial and subsistence farmers. See paragraph 2.3 of Van Rooyen's second supplementary witness statement.
[343] Second supplementary witness statement, paragraph 2.5.
[344] Second supplementary witness statement, paragraph 28.
[345] Transcript page 932.

hybrid seed as a result, unlike OPVs, has to be bought every year.[346] He strenuously resisted the notion of the merging parties' counsel that these farmers never have to buy hybrid seed.

417. We find the merging parties' arguments that small-scale commercial and subsistence farmers can either switch to cheaper OPVs or save hybrid maize seed, and therefore avoid potential price increases by the merged entity, to be disingenuous, as explained below.

418. First, we point out that the merging parties' own expert, Hodge, conceded that hybrid seed and OPVs are not in the same relevant product market (see paragraphs 79 and 390 above).

419. Second, it is common cause that it is important to maintain and improve the maize yields of small-scale commercial and subsistence farmers in order for them to feed their families and communities. The merging parties acknowledged this in their heads of argument: "*Pioneer and Pannar recognize the significant role played by small scale farmers in contributing to food security within subsistence and rural communities*".[347] In Mudhara's words, the smallholder farmers should "*contribute meaningfully by supplying food to their own households so that they all feel secure, but also they've got a surplus which they can sell to the market ...*".[348]

420. As stated in paragraph 413 above, Van Rooyen conceded that OPVs have lower yields than hybrid seeds.

421. In relation to the potential saving of hybrid seed, Mudhara explained why the saving of hybrid seed, which leads to yield reductions, is also not a viable alternative from the perspective of these farmers and their households: "*if you have got a hectare of maize and you are getting, say three tons last year, next year you can expect to get 2.5 and so if you need three tons to feed your family, so you are now short. That's happening*".[349]

422. The following exchange between the chairperson and Mudhara brings this point further home:

> "*CHAIRPERSON: I think the question was ... that a small drop in yield for a subsistence farmer has a greater impact because he's more reliant on his crops than a*

[346] Transcript page 932.
[347] Merging parties' heads, paragraph 147.
[348] Transcript page 928.
[349] Transcript page 937.

large scale commercial farmer. And I think that was the idea and you seemed to agree with it, that it has a devastating impact.

MR MUDHARA: Effect, yes"[350]

423. Furthermore, the merging parties have not sufficiently made out a case for a separate relevant product market for the supply of hybrids to small farmers and have failed to demonstrate that the small farming market is somehow a special case where post-merger price increases are less likely.

424. We conclude that neither the post-merger saving of hybrid seed nor the switching to OPVs is a realistic alternative for small-scale commercial and subsistence farmers since this would decrease the maize yields required to feed them and their families, and communities. This would not be a desirable outcome from a public interest perspective since such switching would certainly not be in the best interest of these small businesses and black farmers. The notion that this could constrain post-merger price increases is simply not persuasive.

425. Therefore we find that a small but significant post-merger increase in the price of hybrid maize seed would have a severe adverse effect on those small-scale commercial and subsistence farmers who currently use hybrid maize seed. Hybrid seed at present represent a minimum of 15% of the seed used by 1.2 million of these farmers and this figure, according to Van Rooyen's testimony, is expected to increase after the proposed merger.

Parties' tendered public interest remedies

426. To address any potential public interest concerns the merging parties tendered the following remedies:

(i) a price cap condition

The merging parties undertook that in respect of the seven hybrids and two OPVs (as well as any replacement products) currently sold by Pannar to small-scale commercial, developing and subsistence farmers, there will be no price increase for a period of three sales seasons after the transaction. In addition, the merging parties undertook that the actual selling prices of these products will not increase beyond the CPI on an annual basis for a further five sales seasons. In addition they

[350] Transcript page 939.

undertook to continue offering these products in sufficient commercial quantities to meet demand and to ensure that such seed is accessible;[351]

(ii) the establishment of a research hub in South Africa

Pioneer confirmed its commitment to establish an international research and technology centre or "hub" in South Africa by 2016.[352]

(iii) working with Government

Pioneer committed to work with the Government to establish new programmes and partnerships in the interests of developing farmers. These programmes and partnerships will focus on transferring know-how in effective farming practices in conjunction with the use of maize seed, with the goal of increasing productivity and welfare for developing farmers. According to Pioneer these programmes will include training regarding hybrid choice and crop production practices, information days (with plot trials) and collaboration with Government extension programmes and personnel.[353]

(iv) a moratorium on job losses

The merging parties further gave the commitment that the proposed merger will not result in any job losses or retrenchments for at least two years after the proposed transaction.[354]

427. ACB criticised these tendered conditions on a number of grounds.

428. ACB's first criticism was that the tendered pricing remedy is limited to current Pannar products supplied to developing farmers and does not extend to other or future hybrid products which might be appropriate to sell to these farmers. The farmers thus are restricted in terms of the remedy to the older hybrid maize seed products.

429. The second criticism was that the merging parties' conditions relating to research and community partnerships are "*couched at an extraordinary level of generality*" and therefore not enforceable.[355]

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[351] Merging parties' heads, paragraphs 150 and 151.
[352] Merging parties' heads, paragraphs 153 and 154.
[353] Merging parties' heads, paragraph 155.
[354] Merging parties' heads, paragraph 156.
[355] Transcript, page 1962.

430. ACB then proposed a number of remedies to the merging parties that in its view would address the public interest concerns raised and would also meet the criteria of enforceability.[356]

Assessment

431. In relation to the merging parties' proposed pricing remedy we conclude that since it is of limited duration i.e. eight sales seasons, it is only meaningful if combined with an effective long-termer term structural remedy, as discussed under the proposed competition remedies (see paragraphs 348 to 357 above).

432. In regard to the proposed remedy relating to research and community partnerships, we find that it suffers from one fatal flaw in that it is not measurable and therefore is incapable of any enforcement. No leniency can be afforded to the common principle in merger control that any tendered remedy is only of value if it contains sufficient specificity to render it enforceable by the Commission after the transaction. Even after ACB at the hearing brought this particular flaw to the attention of the merging parties they did not ultimately step up to the plate to address it. The only conclusion that we can draw from this is that the merging parties are not prepared to make a serious commitment in relation to research and community partnerships.

433. Furthermore, nothing prevents Pioneer from establishing a research hub in South Africa, to work with Government on developing programmes for small farmers or to work with educational institutions to train professionals, absent the proposed merger.

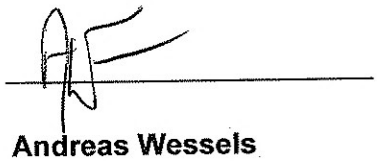
434. We further point out that the tendered public interest conditions do not address and thus do not compensate for the significant competition concerns arising from this merger i.e. the likely and significant negative effect of the proposed merger on maize seed prices that would affect maize farmers in South Africa, including small-scale commercial and subsistence farmers, and ultimately all South African consumers of maize products.

Overall conclusion

435. We conclude that whilst the proposed merger may be in the best interest of Pannar's shareholders, it would not be in the best interest of South African maize farmers and consumers of maize products since it would result in a likely substantial prevention or lessening of competition in the relevant maize seed market(s).

[356] Exhibit 43.

436. As stated in paragraph 2 above, we prohibited the proposed deal on 14 October 2011.



9 December 2011

Andreas Wessels **Date**

Yasmin Carrim and Lawrence Reyburn concurring

Procedural matter: Objection to Commission's evidence and application under Section 45 for access to information

437. During the hearing on the merits of this matter the merging parties raised an objection to certain aspects of the Commission's expert witness testimony. The basis of the objection was that the information relied upon by the Commission's expert, Smith, to compute comparative regional market shares for Monsanto, Pioneer and Pannar had not been made available to the merging parties' attorneys of record, Bowman Gilfillan Inc ("Bowmans"), and that their experts did not have "meaningful access" to it in preparation for the hearing.

438. In order to compute relative market shares of the three competitors Smith had relied upon Monsanto's customer transactional-level data to demonstrate that at a provincial, as opposed to a national level, Pioneer and Pannar were much closer competitors than had been argued by the merging parties.[357] The merging parties asked us to strike out this aspect of Smith's evidence from the record.

439. We have not relied on this part of Smith's evidence to arrive at the conclusion that the merger ought to be prohibited. However we set out the here the circumstances surrounding this objection and the reasons for our decision to dismiss it.

440. During pre-trial preparations and after Smith's witness statement had been filed, the merging parties sought to have access to the underlying information relied upon by Smith. Monsanto, the owner of the information, agreed to grant the merging parties' experts and advocates access to it upon the furnishing of confidentiality undertakings but refused to grant access to Bowmans. This refusal was based on a dispute between Bowmans and Monsanto which had been launched in the High Court.[358]

[357] See Table 15 of Smith's report.
[358] See discussion below.

441. The merging parties accordingly applied[359] to the Tribunal for Bowmans to be given access to the underlying data of Monsanto, and in the alternative sought the striking-out of the relevant part of Smith's evidence as reflected in his expert report.

442. That application was heard on 12 August 2011. Monsanto was represented at that hearing by the law firm Nortons Inc. The Tribunal was told at that hearing that the Monsanto transactional data had been made available to the merging parties (but not to Bowmans) by 26 July 2011, but that it had been incomplete in some way. Monsanto then agreed to enable the merging parties' experts, namely Genesis Analytics (in South Africa) and Bates White (in the USA) to inspect all the Monsanto information forming part of the Commission's expert report. This would include access to the underlying data, but be subject to certain conditions and undertakings.

443. The merging parties agreed to this arrangement but reserved their rights to pursue the application at a future date if they thought it necessary. The matter was adjourned and preparations for the hearing of the main matter went ahead.

444. On 15 August 2011 the Competition Appeal Court ("CAC") dismissed an appeal by Monsanto against a decision of the Tribunal rejecting an application for a stay of the consideration proceedings pending the outcome of an application by Monsanto to the High Court for the removal of Bowmans as the attorneys of record for the merging parties. Following the dismissal, Monsanto undertook to make available for inspection its transactional data to Pioneer's US counsel, Crowell & Moring, as well as to the merging parties' South African advocates, but not to Bowmans.

445. Bowmans then requested an urgent pre-hearing of the Tribunal to discuss and resolve this issue.[360] A pre-hearing meeting was held 05 September 2011. At that meeting the merging parties indicated that they would not press with their section 45 application because Monsanto was amenable to making changes to the agreed access regime so as to enable both Genesis and Bates White to remove the information from the offices of Monsanto's US attorneys. (Prior to this concession the information had been held at the offices of Monsanto's attorneys in the US for inspection there and not elsewhere by the experts.) Genesis had however already been given access to the information in an electronic format (CD) in order for it to work with the information at its offices.[361] The new

[359] In terms of section 45.

[360] Attempts were made by the Tribunal to set down a pre-hearing on 29 August 2011 but representatives for the Commission and Monsanto were unavailable on that date.

[361] The information in a CD format was given after Bowmans informed Nortons that Genesis was unable to replicate the summary information prepared by the Commission's expert (this was after inspection was done at the offices of Nortons). Bowmans therefore requested that Genesis be permitted to take possession of the Monsanto database from Nortons' offices.

arrangement in relation to Bates White had not been confirmed by the end of the pre-hearing. Nortons, however, undertook to make all the necessary arrangements for this. We have no reason to believe that there was any lapse in this regard.

446. The hearing of the main matter commenced on 12 September 2011.

447. The objection to the Commission's evidence was raised by the merging parties after Smith had led his evidence in chief and before cross-examination took place.

448. It was argued by the merging parties' advocates that because the rules of their profession precluded them from "receiving" information by way of instructions otherwise than through an attorney, they could not cross-examine Smith on this evidence. Hence, they said, the merging parties would be denied the opportunity to deal with evidence that had been led by the Commission. This, we were told, was a breach of the merging parties' constitutional right to representation and contravened their right to a fair hearing. Furthermore, they alleged that their experts had not had "meaningful access" to the information prior to the hearing of the matter. On this basis the Tribunal was asked to strike out that portion of Smith's evidence.

449. We declined to do so.

450. In arriving at our decision we had regard to the nature of the underlying information, how and for what period and through which individuals the merging parties had had access to it, and whether or not the merging parties had been prejudiced by Monsanto's refusal to grant Bowmans access to it.

451. The information relied upon by Smith constituted customer sales data recorded in Monsanto's sales records. Smith had allocated these sales according to each province by reference to the postal code of the customer. So for example sales with a postal code of 2001 would be allocated to Gauteng Province, and so forth. This was then aggregated into provincial figures and was compared to the corresponding figures of Pioneer and Pannar. As was explained by Smith in the hearing, all that he had done was to allocate a sales amount to a province, using as his guide the postal codes assigned to towns by the South African Post Office. Where he was uncertain or no postal code was to be found, he had treated the data as best he felt he could. These procedures had been explained to Hodge.

452. This exercise did not involve complex economic modelling or the drawing of legal conclusions from complex facts.

453. Hodge of Genesis and his team had had access to the data and had also been afforded an opportunity to engage with Smith if they so wished as to his methodology from as early as 26 July 2011,[362] and Hodge's team had clearly analysed the data.

454. Even if for some reason Bates White and Waehrer did not get to study the data,[363] Hodge could easily have conveyed his findings to Waehrer and the merging parties' counsel. The crux of the matter is that Hodge had merely to understand Smith's methodology, to verify Smith's calculations, and to convey to Waehrer and to the merging parties' counsel his conclusion whether Smith's methodology and calculations has been accurate and if not why not. This information could also have been conveyed by Hodge to Bowmans. Recall that Bowmans had not been granted access to the underlying information by Monsanto. However, nothing prevented Hodge from communicating to Bowmans his view on the *accuracy or otherwise* of Smith's calculations which in turn Bowmans could have conveyed to counsel. Smith could then have been cross-examined by counsel in the normal way. None of this would have involved improper disclosure of the sales data which Monsanto wished to maintain confidential.

455. It is not as a result of any rule or ruling of the Tribunal that the merging parties' advocates considered themselves to be precluded from receiving information from the Hodge and his team in preparation for the hearing without the involvement of Bowmans. If such preclusion existed and the merging parties chose to retain their legal representatives in those circumstances, any possible disadvantage to the merging parties was self-inflicted.

456. Moreover the merging parties had been free to pursue their section 45 application against Monsanto but they did not do so

457. In the light of all this we found that the merging parties' objection to Smith's evidence had no merit. The objection was accordingly dismissed.

458. However, to avoid any misapprehension on the part of the merging parties that some unfairness could accrue to them, the Tribunal offered to stand down the merger proceedings in order to decide the Section 45 application. They declined the offer.

459. The cross-examination of Smith proceeded. When the time came to cross-examine him on the relevant part of his evidence the entire legal team of the merging parties, advocates and attorneys included, excused themselves from the hearing room on the

[362] See letter from the Commission dated 25 July 2011 (Annexure "DL7").

[363] All that we were told is that there was no "meaningful access".

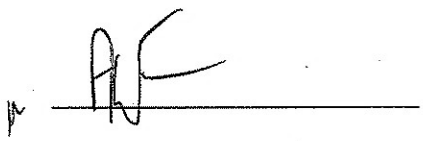
basis that the advocates could not, in their view, "receive" and therefore deal with the evidence on the basis of the rules governing their profession. Hodge then conducted this part of the cross-examination of Smith.

460. At a subsequent stage in the proceedings, while Hodge was giving evidence, he was given an opportunity to respond to Smith's evidence on the aggregated provincial data.[364] At that point Mr Unterhalter (counsel for the merging parties) and his colleagues (excluding Bowmans) elected to stay in the room and to deal with this evidence. The legal team's decision at this juncture seemed to be based on the proposition that once evidence had been given in the Tribunal's proceedings this could be "received" by the advocates and they could deal with it. We are of the view that the nature of the facts contained in Smith's expert witness report did not suddenly change once he had attested to them in the witness box or reproduced them in a slide show which had been given an exhibit number.

461. These were the circumstances surrounding the objection. The merging parties were afforded an opportunity to cross-examine Smith on the aggregated provincial sales data of Monsanto and in fact did so. It was at their own election that they did so through their economics expert rather than their counsel. The Tribunal also provided them with an opportunity to press their section 45 application for access to the underlying data but they elected not to do so. Accordingly, no prejudice could have accrued to them.

462. Nevertheless, as is explained elsewhere in these reasons, we have not relied on the relevant part of Smith's evidence in arriving at our decision that the merger should be prohibited.

463. This reinforces our view that there has been no prejudice to the merging parties.



9 December 2011

Yasmin Carrim **Date**

Andreas Wessels and Lawrence Reyburn concurring

Tribunal researcher : Ipeleng Selaledi

[364] Smith's Table 16 was presented to Hodge by Mr Trengove (counsel for the Commission) at this juncture.

For the merging parties	:	Adv D Unterhalter SC and Adv J Campbell instructed by Bowman Gilfillan Inc.
For the Commission	:	Adv W Trengove SC and Adv J Wilson
For ACB	:	Adv S Budlender and N Lewis

Tebogo Mputle

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Sent: Wednesday, February 08, 2012 4:16 PM
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Cc: Ipeleng Selaledi; Lerato Motaung; 'l.verster@bowman.co.za'; Neo Molefe; 'AchmedM@legal-aid.co.za'; Maya Swart
Subject: Pioneer Hi-Bred and Pannar - 81/AM/Dec10
Attachments: 20120208160512466.tif

Dear All

Please see attached the Tribunal's non-confidential version of the reasons for the decision in the above matter and kindly confirm receipt.

Kind Regards

Tebogo Mputle
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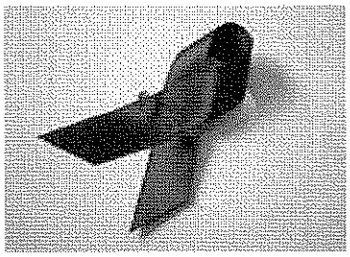

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