



Nufarm and AH Marks

A report on the completed acquisition by Nufarm Crop Products UK Limited of AH Marks Holdings Ltd

10 February 2009

Members of the Competition Commission who conducted this inquiry

Peter Freeman (*Chairman of the Group*)

Jeremy Peat

Richard Taylor

Jonathan Whiticar

Chief Executive and Secretary of the Competition Commission

David Saunders

The Competition Commission has excluded from this published version of the report information which the inquiry group considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by ✂. Some numbers have been replaced by a range. These are shown in square brackets. Non-sensitive alternative wording is also indicated in square brackets.

Contents

	<i>Page</i>
Summary.....	3
Findings	7
1. The reference.....	7
2. The relevant products, the parties and the industry structure	7
The relevant products	7
Nufarm	8
AH Marks	8
The industry structure	9
3. The merger and the relevant merger situation	10
Outline of merger situation	10
The rationale for the merger.....	11
AH Marks rationale for the sale	11
Nufarm’s rationale for the acquisition	11
CC’s conclusion	12
The CC’s jurisdiction	12
Examination of the merger by other competition authorities	13
4. The counterfactual	13
The counterfactual owner of AH Marks	13
The competitive consequences of the counterfactual	14
5. Market definition.....	15
Product markets	15
Initial considerations regarding the production and supply of MCPP-p technical acid to UK customers	16
Demand-side substitution.....	16
Derived demand	16
Possible market definitions	17
Type of crop treated	18
Range of herbicides that could act as substitutes for cereal farmers.....	19
Range of herbicides that can act as substitutes for grassland farmers.....	23
Derived demand	27
Format of supply	27
Supply-side substitution	28
Conclusion on product markets.....	28
Geographic market.....	29
6. Market entry	29
Applicable regulation.....	29
Barriers to import and to starting production of technical acid and manufacturing concentrate	31
Effect of regulation on import of 2,4-D technical acid or manufacturing concentrate	31
Effect of regulation on import of MCPA technical acid or manufacturing concentrate	32
Effect of regulation on import of MCPP-p technical acid or manufacturing concentrate	33
Transport costs	34
Capacity	34
Quality issues	35
Cost of starting to manufacture technical acid or manufacturing concentrate.....	36
Incentive to import technical acid or manufacturing concentrate	38
Barriers to import and to starting production of formulated products	39
Regulatory barriers.....	39
Transport costs	42
Manufacturing formulated product	42

Conclusion on barriers to entry	42
Technical acid	42
Manufacturing concentrate.....	43
Formulated products	43
7. Buyer power.....	43
8. Competition between Nufarm and AH Marks before the merger	43
The pre-merger relationship between Nufarm and AH Marks.....	44
AH Marks did not sell direct to distributors	44
Competition in the production and supply of MCPP-p-based products.....	44
Data evidence of pre-merger competition	45
Third-party views	46
Conclusion	46
9. Assessment of the competitive effects of the merger	46
Horizontal effects	47
2,4-D	47
MCPA.....	50
MCP-p.....	54
Vertical effects.....	57
Coordinated effects	57
10. Conclusions.....	58
11. Remedies	58
Possible remedies and their effectiveness.....	59
Categories of remedies options	59
Structural remedies	60
Nufarm's remedy proposals	63
Conclusion on effectiveness of possible remedies	70
Proportionality	70
Nufarm and OFT views	70
CC assessment.....	71
Relevant customer benefits.....	72
Conclusion on remedies.....	73
Final considerations	75

Appendices

- A Terms of reference and conduct of the inquiry
- B Corporate structure
- C List of phenoxy rights acquired by Nufarm
- D Market definition
- E Entry
- F Buyer power
- G Pre-merger Competition
- H Price increases
- I Timetable for implementation of remedies submitted by Nufarm
- J Cost category proposals for toll manufacturing agreements

Glossary

Summary

1. On 29 August 2008, the Office of Fair Trading (OFT) referred to the Competition Commission (CC), for investigation and report, the completed acquisition of the phenoxy herbicides business of AH Marks Holdings Ltd (AH Marks) by Nufarm Crop Products UK Limited, a wholly-owned subsidiary of Nufarm UK Limited whose ultimate parent company is Nufarm Limited, a company listed on the Australian Stock Exchange (together, Nufarm). The reference was made under section 22(1) of the Enterprise Act 2002 (the Act). We are required to report by 12 February 2009.
2. There is a wide variety of herbicides based on different chemicals used for the prevention and control of weeds in crops. This case relates to phenoxy herbicides, used as a low-cost method of broadleaf weed control in grassland and cereals. The leading phenoxy herbicides globally are 2,4-D, MCPA and MCPP/MCPP-p. In the UK MCPP-p is used most frequently, followed by MCPA and then 2,4-D.
3. MCPA, 2,4-D and MCPP-p have similar supply chains and manufacturing processes. A technical acid is produced either as a flake or as a molten liquid, both of which can be used to make a manufacturing concentrate. The manufacturing concentrate is further diluted and, in some cases, mixed with other chemicals to produce formulated products. Nufarm and AH Marks overlap in the production of technical acids, manufacturing concentrates and formulated products.
4. AH Marks manufactured and supplied six phenoxy technical acids (MCPA, 2,4-D, MCPP/MCPP-p, 2,4-DP/2,4-DP-p, MCPB and 2,4-DB) as well as manufacturing concentrates and formulated products based on these technical acids. AH Marks sold formulated products in bulk to third-party intermediaries which sometimes process the products further (making their own formulated products) before branding, packaging and selling to distributors. It did not sell direct to distributors. AH Marks operated from a single plant at Wyke, near Bradford in Yorkshire.
5. Nufarm is a manufacturer and worldwide supplier of generic crop protection products based in Australia with plants also in the UK, Austria and the Netherlands. Nufarm manufactures and sells a variety of herbicides, insecticides, fungicides and other related products, including the manufacture of both 2,4-D (in Austria) and MCPA (in the Netherlands) technical acids, manufacturing concentrates and formulated products. Before the merger, Nufarm sourced its MCPP-p, MCPB and 2,4-DP-p technical acid requirements for UK use (and 2,4-DB requirements for non-UK use) from AH Marks. Nufarm sells branded products direct to distributors.
6. Nufarm purchased the AH Marks business from AH Marks' shareholders on 5 March 2008. We concluded that this created a relevant merger situation and no party disputed this during our inquiry.
7. We considered what was likely to have happened in the absence of the merger. We found that, absent the acquisition by Nufarm, it was likely that AH Marks would have been sold to United Phosphorous Ltd (UPL) which would have supplied UK customers with phenoxy herbicide products at all levels of the supply chain, either from the Wyke site, or possibly with imported products.
8. We considered the definition of the relevant markets. We concluded that there were:
 - two separate markets for the supply of 2,4-D and MCPA technical acids to UK customers. We did not find it necessary to decide whether there was a separate market for the supply of MCPP-p technical acid to UK customers;

- three separate markets for the supply of 2,4-D, MCPA and MCPP-p manufacturing concentrates to UK customers; and
 - six separate markets for the supply of 2,4-D, MCPA and MCPP-p formulated products to UK customers for use on (a) cereal crops and (b) grassland.
9. For each of the 11 markets identified above, we found that the ability to supply the UK (ie the ownership of the relevant UK and EU licences) was part of the product market. Given the limited number of actual and potential competitors, we considered the constraint imposed by each one individually and therefore did not find it necessary to conclude on the relevant geographic market definition.
 10. We considered it appropriate to assess the impact of the merger at the technical acid level of the supply chain for 2,4-D and MCPA and at the manufacturing concentrate level for MCPP-p. We found that the main barrier to producing formulated products in the UK was access to technical acids and manufacturing concentrates approved for use in the UK. A substantial lessening of competition (SLC) at an upstream level of the supply chain would be expected to result in an increase in the prices of the relevant downstream products.
 11. We found at the technical acid level that access to protected data was the key barrier to entry. Under Directive 91/414/EEC, manufacturers of technical acids must register their product with data demonstrating environmental and biological safety. Generating this data is costly and can take a significant period of time. Suppliers that have submitted this data benefit from a period of 'data protection' and the data can only be obtained at low cost once this period has expired. Where data protection is in force, the barriers to an entrant are sufficiently high to mean that it is more likely to wait until the data protection expires than incur the expenditure otherwise necessary to enter the market.
 12. In 2,4-D, where data protection had expired we found evidence of several manufacturers looking to supply the UK market. For MCPA, we identified one alternative source within the EU following the merger, but we found no evidence that it was likely to seek actively to enter the UK market and found no evidence of other potential entry in the period before data protection expired in May 2011. In relation to MCPP-p, we found no evidence of potential entry in the period prior to the expiry of data protection (June 2009), but some evidence of possible entry following its expiry.
 13. We did not find transport costs or quality concerns to be an entry barrier to imports. Likewise we found that there was sufficient spare capacity for 2,4-D and MCPA to satisfy UK demand. However, with respect to MCPP-p, we found that the limited number of worldwide producers, the relatively limited use of MCPP-p outside the UK and the uncertainty regarding the ease of switching production from MCPA indicated that capacity might make entry to this market less likely.
 14. We found that any buyer power would be insufficient to countervail possible anti-competitive effects of the merger.
 15. We found that Nufarm and AH Marks were competing directly in the relevant markets before the merger, with two exceptions. First, competition between Nufarm and AH Marks in the supply of MCPP-p differed from the position in 2,4-D and MCPA. Before the merger, Nufarm purchased its MCPP-p technical acid from AH Marks under the terms of a toll manufacturing agreement, which allowed Nufarm to compete with AH Marks in the manufacture and supply of MCPP-p-based manufacturing concentrates and formulated products.

16. Second, competition in formulated products was indirect. AH Marks did not sell formulated products direct to distributors, but sold bulk formulated products to packagers, such as Headland Agrochemicals (Headland), which were then sold to distributors; or it sold technical acids and manufacturing concentrates to formulators, such as UPL, which produced formulated products and then sold them to distributors. However, we found that bulk and packaged formulated products formed part of the same product market.
17. We assessed the competitive effect of the merger on the relevant technical acids—2,4-D and MCPA—as well as the associated manufacturing concentrates and formulated products. For MCPP-p, we considered the effect of the merger on the relevant manufacturing concentrate and formulated products.
18. Before the merger there were three manufacturers of 2,4-D technical acid supplying UK customers: Nufarm, AH Marks and Dow AgroSciences (Dow). In the counterfactual, there would still be three (Nufarm, UPL and Dow). We found that the merger had removed one of Nufarm’s closest competitors. However, we found that Nufarm would still face competition from Dow. Further, we found that there was a sufficiently high likelihood of entry (since data protection for 2,4-D had expired) to ensure that the markets were competitive. We therefore considered that after the merger Nufarm would face sufficient competitive constraints to prevent it from sustaining price increases.
19. Before the merger, Nufarm and AH Marks were the only manufacturers of MCPA supplying UK customers. In the counterfactual, there would still be two: Nufarm and UPL. Post-merger, Nufarm became the only manufacturer and supplier of MCPA technical acid to UK customers. MCPA will remain under data protection until 2011 and we found it highly unlikely that sufficient entry would occur to replace the loss of constraint from AH Marks until after that time. We therefore found that Nufarm might be expected to be able to increase prices at each level of the supply chain until at least one year after the loss of data protection in May 2011.
20. Prior to the merger, there was one manufacturer of MCPP-p technical acid, AH Marks. The terms of the toll manufacturing agreement between AH Marks and Nufarm allowed both to compete in the supply of MCPP-p technical acid (see paragraph 15), although there were no identifiable UK customers for MCPP-p technical acid. Nufarm and AH Marks did, however, compete in the supply of MCPP-p manufacturing concentrate and formulated products to UK customers. In the counterfactual, we found that the toll manufacturing agreement would have remained in place, between UPL and Nufarm, and so there would still be two suppliers capable of competing. The merger resulted in a loss of competition at the manufacturing concentrate and formulated product levels of the supply chain. We therefore found that Nufarm might be expected to be able to increase prices of MCPP-p at these levels of the supply chain. MCPP-p was data protected until June 2009 and entry was highly unlikely until after that time.
21. On the basis of our competitive assessment, we therefore concluded that:
 - the merger may be expected to result in an SLC for MCPA at the technical acid, manufacturing concentrate and formulated product levels of the supply chain. We concluded that this SLC would last until at least a year after MCPA lost data protection in May 2011; and
 - the merger may be expected to result in an SLC for MCPP-p at the manufacturing concentrate and formulated product levels of the supply chain. We concluded that

this would last until at least 18 months after MCPP-p lost data protection in June 2009, and possibly significantly longer.

22. We found insufficient evidence to conclude that the merger may be expected to result in an SLC for 2,4-D at the technical acid, manufacturing concentrate or formulated product levels of the supply chain.
23. We considered in detail two possible remedies to the SLCs that we had identified: divestiture of the AH Marks business, and a package of remedies proposed by Nufarm. For MCPA, this package included a supply agreement of MCPA technical acid with Dow and the transfer of a registration for an MCPA formulated product to Dow. It also included the creation and transfer of a registration for an MCPA formulated product to a third party, Sarzyna. With regard to MCPP-p, it included agreements to supply MCPP-p manufacturing concentrate and formulated products to Headland and UPL.
24. We found that either divestiture or the Nufarm package (as modified following analysis and discussion with Nufarm and third parties) would be effective remedies. However, we found that while divestiture would not be disproportionate, the Nufarm package would be more targeted in addressing the SLCs that we had identified. In particular, it would not affect other markets where we found no SLC, it would directly address the key barriers to entry we found, and it would have a fixed duration, appropriate to the limited duration of the SLCs we found.
25. The markets in relation to which we have identified concerns were small, at least as regards the UK, and the detriment resulting from the SLC for individual farmer customers in the UK may also be small. However, cumulatively, that detriment may be significant, and may persist, giving rise to appreciable harm to consumers. Further, the fact that the UK markets are small does not detract from the need to remedy an SLC once the OFT has determined that the market is of sufficient importance to justify making a reference.
26. Finally, during the course of the inquiry we became concerned by the concentrated nature of the markets for phenoxy acids, and the extent of cooperation that appears to prevail between the various market participants. We noted that the regulatory framework created barriers to entry (as it was designed to) and has the potential, with its individual national authorizations, to enhance transparency and facilitate territory sharing among competitors. We are drawing these concerns to the attention of the relevant authorities.

Findings

1. The reference

- 1.1 On 29 August 2008, the OFT, in exercise of its duty under section 22(1) of the Enterprise Act 2002, referred to the CC for investigation and report the completed acquisition of AH Marks by Nufarm. The reference required us to determine:
- (a) whether a relevant merger situation had been created; and
 - (b) if so, whether the creation of that situation resulted or may be expected to result in an SLC within any market or markets in the UK for goods or services.
- 1.2 We must report by 12 February 2009. Our terms of reference are in Appendix A, together with an explanation of how we have conducted our inquiry.

2. The relevant products, the parties and the industry structure

The relevant products

- 2.1 Herbicides are used for the prevention and control of weeds in crops. Herbicides are part of the wider agrichemical industry. In 2006, the global supply of herbicides for both crop and non-crop usage was valued at \$16,040 million (approximately 45 per cent of the global agrichemicals supplied¹). There are a wide variety of herbicides based on different chemistries. Phenoxy herbicides represented 3.3 per cent of the global supply of herbicides (by value) in 2006 (approximately \$525 million). As a group, phenoxy herbicides are used as a low-cost method of broadleaf weed control across a wide range of crops.
- 2.2 There are several types of phenoxy herbicide:
- (a) acetic phenoxies: 2-methyl-4-chlorophenoxyacetic acid (**MCPA**) and 2,4-Dichlorophenoxyacetic acid (**2,4-D**);
 - (b) butyric phenoxies: 4-(4-chloro-o-tolyloxy) butyric acid (**MCPB**) and 4-(2,4-dichlorophenoxy) butyric acid (**2,4-DB**); and
 - (c) propionic phenoxies: 1-(3-Chlorophenyl) piperazine (or *meta*-chlorophenyl-piperazine) (**MCPP/MCPP-p**)² and 2-(2,4-dichlorophenoxy) propionic acid (**2,4-DP/2,4-DP-p**).
- 2.3 MCPP-p is the optical version of MCPP³ and similarly 2,4-DP-p is the optical version of 2,4-DP. The optical products have replaced the non-optical (or racemic) versions in most developed countries (including Europe and the USA) for environmental reasons.⁴

¹The global supply of agrichemical products, including non-crop sectors (pasture, turf, forestry and industry use), was valued at \$35,575 million in 2006. Other agrichemical products used for crop protection include insecticides and fungicides (used for the prevention and eradication of plant diseases).

²Also referred to as Mecoprop or CMPP.

³MCPP-p is formulated to use a purified form of MCPP known as the optical isomer—an improved manufacturing process that selectively produces the actively herbicidal part of MCPP and minimizes the inactive MCPP. This is similar for 2,4-DP and 2,4-DP-p.

⁴However, AH Marks still produces small amounts of the racemic technical acids for non-UK-end customers.

2.4 Globally, the leading phenoxy products are: 2,4-D, which accounts for 60 to 70 per cent; MCPA, which accounts for 10 to 20 per cent; and MCPP/MCPP-p, which accounts for up to 10 per cent of the global supply of phenoxyes (by value). However, in the UK, MCPP-p⁵ is used more frequently than MCPA and 2,4-D. We estimated that MCPP-p is the largest product in the UK, accounting for around 50 to 60 per cent of phenoxy sales (by value) followed by MCPA with 20 to 30 per cent, and 2,4-D with up to 10 per cent.⁶

Nufarm

2.5 Nufarm Ltd is a leading manufacturer and supplier of generic crop protection products, with its headquarters in Melbourne, Australia, and active in the UK through its subsidiary Nufarm UK Ltd, based in Belvedere, Kent. Nufarm holds about 2,100 product registrations worldwide and sells products in more than 100 countries. The crop protection products it sells include herbicides (that control weeds), insecticides (that kill insects and mites), fungicides (that kill fungus infections which attack the crops) and other related products.

2.6 Nufarm is active as a producer of technical acid, manufacturing concentrate, formulated product, and as a packager of phenoxy herbicides. Nufarm manufactures 2,4-D technical acid in Australia and Austria, and MCPA technical acid in the Netherlands.

2.7 Before 2004, Nufarm manufactured a full range of phenoxy technical acids, but in 2004 it purchased the phenoxy business of BASF. Over time it ceased manufacturing all phenoxy acids except MCPA and 2,4-D, and began to source its remaining requirements from AH Marks through a toll manufacturing agreement, formerly between AH Marks and BASF, that Nufarm had acquired along with the BASF phenoxy business.

2.8 Under the toll manufacturing agreement, AH Marks was paid a fee [REDACTED].^{7,8,9} The toll manufacturing agreement contained certain clauses: Nufarm had to [REDACTED], and AH Marks had to [REDACTED]. The toll manufacturing agreement had existed in its current form since 2004.¹⁰ The terms of the agreement indicated that Nufarm and AH Marks could compete actively in the supply of MCPP-p prior to the merger.

AH Marks

2.9 AH Marks (whose corporate name became Nufarm Ltd) is owned by Nufarm UK Ltd (via a holding company Nufarm Crop Products Limited) as a result of the merger. Appendix B sets out the corporate structure.

2.10 AH Marks operates from a single site at Wyke, near Bradford in Yorkshire. It supplies crop protection products and performance chemicals. Its crop protection products consist of herbicide products and certain inputs into herbicide products known as 'intermediates'. The crop protection business accounted for £[REDACTED] million of AH Marks's £62 million turnover for its financial year ended July 2007. AH Marks also produces performance chemicals at its Wyke site. These are primarily chemicals called 'inhibitors', which are used in the petrochemical and personal care sectors

⁵MCPP is not registered for sale in the UK.

⁶We do not have precise figures for the UK, but since (with the exception of Dow producing 2,4-D) before the merger Nufarm and AH Marks were the only suppliers to UK customers, their combined sales were used as a proxy.

⁷[REDACTED]
⁸[REDACTED]
⁹[REDACTED]
¹⁰[REDACTED]

(and are not used at all in crop protection). AH Marks's performance chemicals business accounted for £[~~8~~] million in its 2007 financial year. Export sales accounted for over 90 per cent of AH Marks's total revenues of £62 million in 2007 and the vast majority of its crop protection products are exported to 40 countries around the world.

- 2.11 AH Marks is active in the production and supply of six phenoxy technical acids (all in the UK): MCPA, 2,4-D, MCPP/MCPP-p, 2,4-DP/2,4-DP-p, MCPB and 2,4-DB. It also produces intermediate chemicals that can be used in the production of downstream agrichemicals products.¹¹ It does not generally produce packaged herbicides itself: instead it mainly sells bulk formulated products to packagers, such as Headland, which then sell to distributors; or sells technical acids, manufacturing concentrates and/or bulk formulated products to intermediaries, such as UPL, which formulate these inputs into straight and mixed herbicides for sale to distributors.

The industry structure

- 2.12 MCPA, 2,4-D and MCPP-p have similar supply chains and manufacturing processes. The technical acid is produced through a process of chemical synthesis. Both MCPA and 2,4-D are produced using MCA (chloro acid) and a Chloro Phenol (PCOC for MCPA and 2,4-DCP for 2,4-D). MCPP-p is produced from the condensation of L-CPA¹² with PCOC. The technical acid can be produced as a flake (which is then packaged and sold) or a molten liquid (which is used internally to make manufacturing concentrates on the same site).
- 2.13 Manufacturing concentrates have two main forms: 'esters', which are produced by reacting the technical acid with alcohol,¹³ and 'aqueous solutions', which are produced by reacting the technical acid with an alkali. Esters and aqueous solutions are produced using the same equipment. These manufacturing concentrates are stored in the most concentrated form in which they can remain in solution, for example MCPA, at 750g/l and 2,4-D at 720g/l.¹⁴
- 2.14 The manufacturing concentrates are then further diluted (with water, solvents or an alkali) and, in some cases, mixed to produce formulated products using the same processing equipment which is used to convert technical acids to manufacturing concentrates.¹⁵
- 2.15 Manufacturing concentrates and formulated products are essentially the same product at different levels of concentration. In some cases, they may be an identical product. For example, some farmers may purchase a formulated herbicide MCPA 750,¹⁶ whereas in other cases MCPA 750 may be stored as a manufacturing concentrate for future dilution to, say, an MCPA 600 formulated herbicide for sale to farmers.
- 2.16 However, as Nufarm and AH Marks sell MCPA, 2,4-D and MCPP-p as manufacturing concentrates and formulated products, we considered it necessary to assess the three stages of the supply chain separately. The overlap is illustrated in Figure 1.

¹¹L-CPA, DCP, ACPA and MeACPA, which are used in the production of optical propionic phenoxyes (MCPP-p and 2,4-DP-p). L-CPA is also an input into the synthesis of MAQ, which is in turn used to manufacture 'fops' which are a type of selective herbicides used to treat grass weeds rather than broadleaf weeds. AH Marks has not sold MAQ commercially.

¹²Or L-CIB or L-CPM.

¹³For historical and climatic reasons esters are not widely used in the UK.

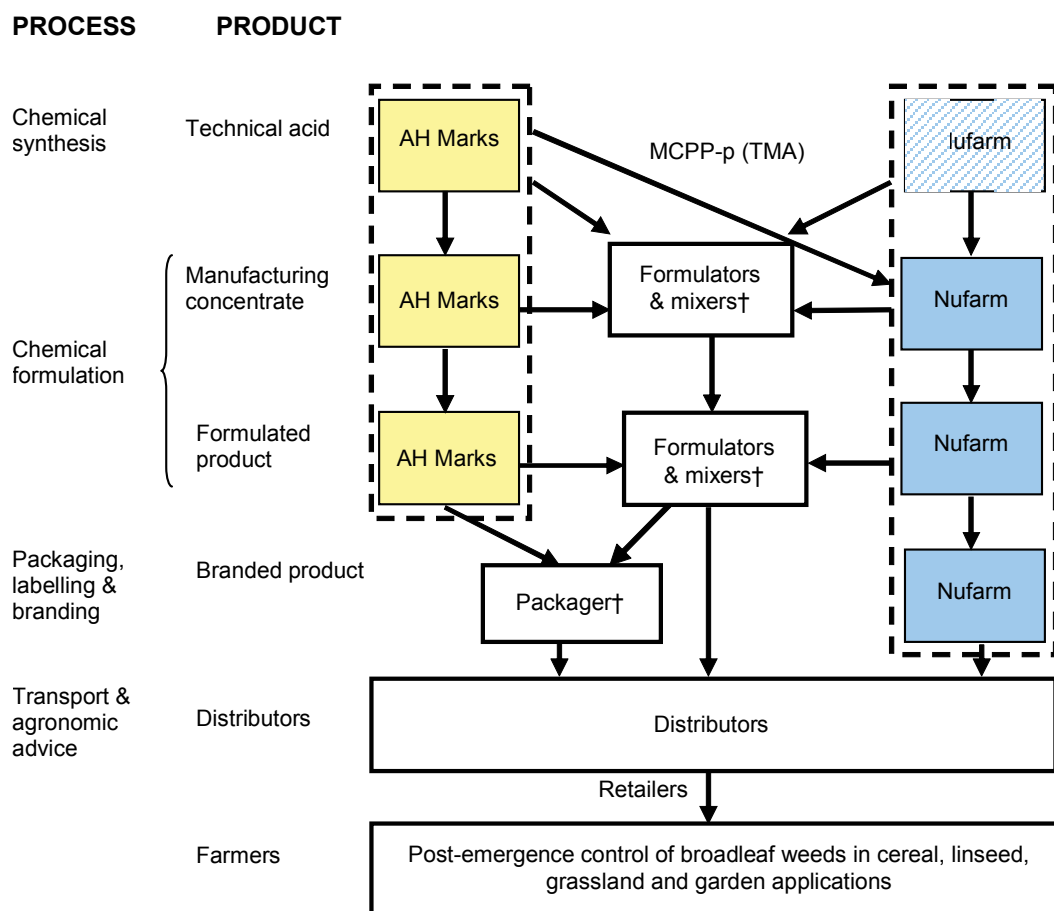
¹⁴Nufarm refers to 'manufacturing concentrates' as 'strong stock solutions'.

¹⁵As an alternative to mixing manufacturing concentrates to create mixed herbicides, one or more technical acids can be mixed at the initial stage to make a mixed manufacturing concentrate.

¹⁶Concentration 750g/l.

FIGURE 1

The supply structure pre-merger for MCPA, 2,4-D and MCPP-p*



Source: CC.

*For MCPP-p the relevant differences are that Nufarm does not produce MCPP-p technical acid, it purchases it from AH Marks; as such, the blue hatched Nufarm box in the top right-hand corner of the supply chain is removed. AH Marks and Nufarm do not supply MCPP-p technical acid to UK customers. †May or may not be vertically integrated.

2.17 We noted that AH Marks sold manufacturing concentrates and formulated products mainly in bulk to third-party intermediaries who sometimes process the concentrate further (for example) by mixing it with other manufacturing concentrates, and making their own formulated products, before packaging, branding and selling them to distributors. In comparison, Nufarm mainly sold branded herbicides direct to distributors.

3. The merger and the relevant merger situation

Outline of merger situation

3.1 Nufarm agreed to buy the AH Marks business from AH Marks's shareholders under a sale and purchase agreement dated 5 March 2008.

- 3.2 Nufarm agreed to purchase the entire issued share capital of AH Marks,¹⁷ for consideration of £[x] million comprising £[x] million [x]¹⁸ and £[x] million in assumed debt.

The rationale for the merger

AH Marks rationale for the sale

- 3.3 The Information Memorandum prepared by advisers to AH Marks's shareholders stated that 'as a privately owned company and with its current capital structure, AH Marks does not have the resources to pursue all these global opportunities. It is Management's belief that they can be much better exploited under ownership of a strategic purchaser with international reach'.

Nufarm's rationale for the acquisition

- 3.4 Nufarm stated that it was primarily attracted to the increased capacity AH Marks would provide and its international business: over 90 per cent of AH Marks's revenues were attributable to export sales. Additionally, Nufarm believed that the merger would deliver scale efficiencies allowing phenoxyes to remain competitive in the face of increasing input costs and price reductions in other herbicides. Nufarm expected efficiency gains to be achieved by combining and focusing the facilities of Nufarm (Belvedere and Botlek sites) and AH Marks (Wyke site) more specifically by:
- (a) focusing production at the Wyke site to gain efficiencies of production thereby achieving longer uninterrupted production runs rather than the previous AH Marks practice of scheduled shutdowns before switching products. Increasing production would reduce the unit cost;
 - (b) investing in production improvements, and access to capital, would improve the manufacturing process (reliability, raw material procurement and finished goods availability);
 - (c) creating savings by switching supply of certain raw material intermediates to AH Marks; and
 - (d) creating savings in logistics, transport and warehousing by combining duplicate facilities.
- 3.5 By rationalizing and keeping costs to a minimum, Nufarm believed that it should continue to produce these herbicides profitably and offer distributors and farmers a viable alternative to other means of broadleaf control.
- 3.6 Underpinning the points in paragraph 3.4, Nufarm stated that a key strategic driver was to consolidate its position and commercial strength in the global methyls and phenoxy markets. Appendix C sets out a summary of the MCPA and 2,4-D rights acquired by Nufarm within the EU. Since 1999, Nufarm had acquired three (of the seven original¹⁹) companies with 2,4-D rights and since 1993 five (of the nine original) companies with MCPA rights within the EU.

¹⁷See Appendix B for Nufarm/AH Marks group organization chart.

¹⁸This was funded through a placement of new shares in Nufarm to institutional investors in Australia and elsewhere.

¹⁹Excluding Nufarm.

CC's conclusion

- 3.7 We accept that AH Marks's shareholders had strong commercial reasons to sell the business, and that Nufarm had efficiency reasons to buy it.²⁰

The CC's jurisdiction

- 3.8 Under section 35 of the Act and our terms of reference (see Appendix A), we are required to decide whether a relevant merger situation has been created. A relevant merger situation is created where two or more enterprises have ceased to be distinct²¹ within the statutory period for reference, and either the share of supply test or the turnover test is satisfied.²²
- 3.9 As described in paragraphs 3.1 and 3.2, enterprises carried on by AH Marks ceased to be distinct from those carried on by Nufarm.
- 3.10 The share of supply test is met if, as a result of the merger, the enterprises which ceased to be distinct have a share of supply of goods or services of any description in the UK, or in a substantial part of the UK, of at least one-quarter. The application of the share of supply test is different from the definition of market shares undertaken as part of any analysis of competition within an economic market.
- 3.11 The parties overlap in the supply of certain phenoxy products in the UK, which are supplied, or capable of being supplied, in a number of forms including technical acids, manufacturing concentrates and formulated products. We considered it necessary to focus on overlaps in the following areas:²³
- (a) production of MCPA and 2,4-D technical acids for supply in the UK;
 - (b) supply of MCPP-p technical acid in the UK;
 - (c) production of MCPA, 2,4-D and MCPP-p manufacturing concentrates for supply in the UK; and
 - (d) production of MCPA, 2,4-D and MCPP-p-based formulated products for supply in the UK.
- 3.12 The merger resulted in Nufarm's and AH Marks's share of supply of MCPA and MCPP-p in the form of either technical acid or manufacturing concentrate in the UK exceeding 25 per cent,²⁴ and on that basis the share of supply test is satisfied.
- 3.13 We therefore concluded that a relevant merger situation under section 23(1) of the Act had been created.

²⁰These reasons largely relate to costs, although we saw some evidence that at least some Nufarm personnel believed that Nufarm could increase prices following the merger. Nufarm denied that this was a reason for its decision to proceed with the purchase.

²¹Enterprises cease to be distinct if they are brought under common ownership or common control.

²²Section 23 of the Act.

²³See paragraph 5.4 for more detail.

²⁴Prior to the merger, Nufarm and AH Marks were the only suppliers of MCPA technical acid; and MCPA and MCPP-p manufacturing concentrate in the UK; therefore we consider their share of supply in relation to each of these to be 100 per cent as a result of the merger.

Examination of the merger by other competition authorities

3.14 The merger is being examined by the Federal Trade Commission in the USA, the Canadian Competition Bureau and by the Australian Competition and Consumer Commission. It was not opposed by the German Bundeskartellamt, a decision notified to Nufarm in a letter dated 7 February 2008.

4. The counterfactual

The counterfactual owner of AH Marks

- 4.1 We must decide if the merger resulted in or may be expected to result in an SLC. To do this, we considered what would have happened had Nufarm not purchased AH Marks. This situation, referred to as the counterfactual, is the benchmark against which we compared the competitive effects of the merger.
- 4.2 Nufarm told us that, although not a failing firm in the sense recognized by competition law, at the time of the sale Nufarm did not believe that AH Marks would have remained a viable supplier of phenoxy herbicide products in the UK in the long run, especially in light of rising costs.
- 4.3 In our view, AH Marks was in a weak financial position prior to its acquisition through a management buyout (MBO) in 2005. AH Marks had sustained losses over a long period leading to difficulties in relation to continuing bank financing. The MBO inherited these banking difficulties and was only able to finance the transaction through a combination of management equity, asset-backed finance and a sale and leaseback of the Wyke site.
- 4.4 While, in 2005, AH Marks had net cash outflows of £[REDACTED] million, this recovered in 2006 after a significant cash injection as part of the MBO. However, net cash flow from operating activities continued to decline in 2006, resulting in a cash outflow of £[REDACTED] million. As a consequence, AH Marks consistently experienced cash shortfalls and working capital constraints, influenced by fully utilized debt facilities and rising input costs.
- 4.5 We understand from former shareholders that, in addition to the continuing weak financial position of the company, they decided to sell to Nufarm as a result of an expression of interest received, combined with the fact that management wanted to increase the likelihood of completing a disposal before the coming into force of new capital gains tax legislation on 5 April 2008.
- 4.6 In addition to Nufarm's successful offer, there was an offer of interest from another international crop protection company. Although this did not progress to a formal offer, it was still considered and rejected on several grounds.²⁵
- 4.7 UPL submitted an offer that included [REDACTED].
- 4.8 However, the shareholders rejected UPL in favour of Nufarm [REDACTED].
- 4.9 We believe that the financial position of AH Marks was key to the decision to sell and the desire by the majority shareholders to complete the sale prior to the introduction of new capital gains tax legislation was a secondary consideration. We consider that UPL's bid was credible and competitive, a view supported by evidence received from

²⁵Correspondence from Deloitte & Touche LLP (sale advisers) indicates that, [REDACTED].

AH Marks's former shareholders. Accordingly, had Nufarm not succeeded, we have reached an expectation that a sale would have proceeded, and UPL would have bought AH Marks.

- 4.10 AH Marks's shareholders believed that UPL would close Wyke (due to indications received during the bid process, and their view [REDACTED]).
- 4.11 UPL told us that its rationale for acquiring AH Marks was based on [REDACTED]. UPL did not manufacture technical acids or manufacturing concentrates in the UK. It purchased technical acids from AH Marks for production of formulated products at its own plant in Cheshire, England. UPL had identified the main weaknesses in the AH Marks business model as the underutilized plant and the lack of presence with respect to sales and distribution. UPL stated that its offer for AH Marks was based on [REDACTED].
- 4.12 In addition, the acquisition of AH Marks would have included AH Marks's formulated product registrations and approved sources of MCPA, 2,4-D and MCPP-p. The approved sources (as discussed in Section 6) can be transferred to different plants or co-registered, which would have allowed UPL to move production outside the UK.
- 4.13 We expect that UPL would have continued to supply UK customers, most likely with products manufactured at Wyke. Even if UPL had closed Wyke, and [REDACTED], it would have continued to supply the UK via imports.

The competitive consequences of the counterfactual

- 4.14 To assess the impact of the merger, we compared the post-merger situation with the counterfactual situation in which UPL bought AH Marks, and Nufarm and UPL continued separately to supply UK customers with phenoxy products, rather than with the pre-merger situation (ie where Nufarm and AH Marks remain in the market).
- 4.15 Before the merger, UPL operated as a formulator. It purchased technical acid and manufacturing concentrates from AH Marks to formulate into a range of straight and mixed herbicides. It then packaged these products in-house for sale to distributors. UPL also purchased ready-formulated products in bulk from AH Marks to be packaged and sold to end-users. At the formulated product level of the supply chain, there was competition between UPL, AH Marks (via Headland etc) and Nufarm through the development of different mixed herbicides which compete against each other, ie phenoxy mixes with different proportions.
- 4.16 In the counterfactual in which UPL purchased AH Marks, UPL would have become fully integrated, from the production of technical acids through to the sale of branded packaged products to distributors. Therefore, Nufarm and UPL would both operate at all levels of the supply chain, compared with the pre-merger situation where AH Marks was not active in the packaging of products for sale to distributors.
- 4.17 While we considered that AH Marks and Nufarm were competing at the formulated product level of the supply chain (due to AH Marks' supplying Headland—see further Section 8), the counterfactual could be more competitive than the pre-merger position of AH Marks and Nufarm, due to the elimination of any double marginalization that might exist.
- 4.18 However, we consider it possible that UPL would have had less incentive than an independent AH Marks to supply other formulators/packagegers with technical acids

and manufacturing concentrates, as they would be manufacturing products that would compete directly with UPL's products.²⁶

4.19 Having established the counterfactual, we consider the competitive effects of the merger. To do this, we assessed the market in which Nufarm and AH Marks were operating, the ability of other companies to enter the market, and whether customers had significant buyer power. These issues are considered in the following sections.

5. Market definition

Product markets

5.1 In defining the market, we aim to identify the extent to which customers can readily switch between products, or suppliers can readily switch their facilities between the supply of alternative products, in response to a change in price imposed by a hypothetical monopolist of the relevant product. Market definition is not an end in itself, but rather a framework within which to analyse the effects of a merger. As such, market definition is a useful tool for identifying the competitive constraints affecting the merged entity.

5.2 The parties stated that they overlapped in:

- (a) the production of MCPA and 2,4-D technical acids;
- (b) the production of MCPA, 2,4-D, MCPP-p, 2,4DP-p and MCPB manufacturing concentrates for supply to UK customers; and
- (c) the production of formulated herbicides based on these manufacturing concentrates for supply to UK customers.

5.3 The parties' sales for each product are set out in Table 1.²⁷

TABLE 1 Total UK phenoxy sales (technical acids, manufacturing concentrates and formulated products) by Nufarm and AH Marks, 2007

	£		
	<i>Nufarm</i>	<i>AH Marks*</i>	<i>Both</i>
2,4-D	[£]	[£]	[>1million]
MCPA	[£]	[£]	[>2 million]
MCPP-p†	[£]	[£]	[>4 million]
2,4-DP-p†	[£]	[£]	[>100,000]
MCPB	[£]	[£]	[>300,000]
2,4 DB	[£]	[£]	[>100,000]
Phenoxy	[£]	[£]	[Approx 9 million]
Total‡	[£]	[£]	[Approx 10 million]

Source: Nufarm and AH Marks transaction data.

*Excluding sales to Nufarm.

†MCPP and 2,4-DP are not registered for sale in UK.

‡Including value of non-phenoxyes included in the sold product.

Note: Accounting years differ: Nufarm (August 2006 to July 2007) and AH Marks (July 2006 to June 2007). Allocation of value of mixtures based on the weight of each ingredient.

²⁶Nevertheless, we consider UPL's ability to foreclose other formulator/packagers would have been limited by the continued presence of Nufarm as an alternative source.

²⁷CC estimates based on transaction data provided by Nufarm and AH Marks. The figures differ slightly from those provided by Nufarm.

- 5.4 We considered the overlaps which were most significant for our inquiry, namely:
- (a) the production of 2,4-D and MCPA technical acids for supply to UK customers;
 - (b) the production of MCPP-p technical acids for supply to UK customers;
 - (c) the production of 2,4-D, MCPA and MCPP-p manufacturing concentrates for supply to UK customers; and
 - (d) the production of 2,4-D, MCPA and MCPP-p-based formulated products for supply to UK customers.

Initial considerations regarding the production and supply of MCPP-p technical acid to UK customers

- 5.5 Before the merger, the only companies demanding MCPP-p technical acid in the UK were Nufarm and AH Marks. This demand was satisfied internally through AH Marks' production and the toll manufacturing agreement between Nufarm and AH Marks.
- 5.6 Accordingly, we considered that it was not necessary to define the market relevant to the supply of MCPP-p technical acid as such definition would not change our competitive assessment. Either there is no UK market for MCPP-p technical acid due to the lack of external UK customers, or since Nufarm and AH Marks are internal customers and can both supply MCPP-p technical acid, there is a relevant market,²⁸ within which there was no competition before the merger. On either basis we consider that the merger would not result in an SLC in the supply of MCPP-p technical acid.
- 5.7 MCPP-p manufacturing concentrate and formulated product are considered in detail below.

Demand-side substitution

Derived demand

- 5.8 The technical acids and manufacturing concentrates produced by the parties are intermediate products. Consumers only purchase formulated products. The only use for 2,4-D, MCPA, and MCPP-p technical acids is in the production of 2,4-D, MCPA and MCPP-p manufacturing concentrates (mixed or unmixed). Further, the only use for 2,4-D, MCPA and MCPP-p manufacturing concentrates is in the manufacture of 2,4-D straight herbicides, MCPA straight herbicides, MCPP-p straight herbicides respectively or pre-mixed herbicides which include 2,4-D, MCPA and/or MCPP-p.²⁹ As such, the demand for technical acid and manufacturing concentrate is derived from the demand for mixed and straight formulated products.
- 5.9 Since we were not provided with sufficient information about substitutability in the technical acid markets, it was appropriate to consider downstream substitution to assist us with defining markets at the three levels of the supply chain. All else being equal, the upstream (technical acid) markets are more likely to be wider:

²⁸The evidence on limited demand-side and supply-side substitution at the formulated product level of the supply chain and our conclusions on the derived demand for technical acids and manufacturing concentrates, as discussed below, applies equally to MCPP-p and MCPA/2,4-D and would therefore support a narrow market definition.

²⁹We note that farmers can also mix herbicides directly on the field in a process termed 'tank-mixing'. See paragraph 5.34.

- (a) the wider the downstream market for herbicides based on those acids;
 - (b) the easier it is to substitute different technical acids for 2,4-D, MCPA and MCP-p in the production of the respective herbicides; and
 - (c) the greater the share of total costs of the herbicide accounted for by the manufactured concentrate and likewise the greater the share of total costs of manufacturing concentrate accounted for by the technical acid.³⁰
- 5.10 With regard to (b) above, herbicides are registered based on a precise mix of technical/active ingredients, therefore ‘substituting’ 2,4-D, MCPA or MCP-p for another technical acid results in a new product that requires its own licence.³¹ Accordingly, technical acids may not be substituted for each other. The new product might be a demand-side substitute to the original product downstream, but this is considered under (a).
- 5.11 With regard to (c), it is necessary to consider the extent to which the increase in the price of the technical acid may affect the price of the herbicide based on it. The parties told us that the proportion of the price of AH Marks’ manufacturing concentrate that was accounted for by technical acid costs is [60–70] per cent for 2,4-D straight herbicides, and [60–70] per cent for MCPA straight herbicides. In comparison, the proportion of the price of Nufarm’s formulated product accounted for by the technical acid costs was [50–60] per cent for 2,4-D straight herbicides and [60–70] per cent for MCPA straight herbicides. The figures for MCP-p were slightly higher at around [70–80] per cent.
- 5.12 As such, we considered a price increase at the technical acid or manufacturing concentrate levels of the supply chain would likely result in a lower percentage price increase at the formulated product stage. We therefore expected the market for technical acids and manufacturing concentrates to be narrower than that suggested by a small but significant non-transitory increase in price conducted at the formulated product level.³² By considering a 5 per cent price increase downstream, we were effectively considering a higher price increase upstream, and so if we find little substitution downstream in response to a 5 per cent price increase it would make a finding of a narrow upstream market more robust.

Possible market definitions

- 5.13 Our aim was to determine the herbicidal options for a farmer of a specific crop, when confronted by a specific weed. On this basis, there were several ways in which the product market may be split. Specifically, we considered:
- (a) the type of crop treated;
 - (b) the range of herbicides that could act as substitutes for cereal farmers;
 - (c) the range of herbicides that could act as substitutes for grassland farmers;
 - (d) the effect of demand for technical acid being ‘derived’; and

³⁰We note that a smaller share of total costs may indicate an even narrower upstream market or may indicate a high degree of competition upstream.

³¹Within a band of tolerance of 10 per cent, according to the parties.

³²We note that for mixed herbicides the proportions could be significantly lower—for example, for the top five MCP-p mixes, MCP-p technical acid represents between 22 and 56 per cent of the total price. As such, for mixed products a 5 per cent increase in the phenoxy technical acid would be expected to result in an even smaller change in the price in the downstream market.

- (e) whether the market should be segmented by the format of supply (ie bulk or packaged product).

Type of crop treated

- 5.14 We considered that there was no demand-side substitution between herbicides to treat different crop types. A farmer who requires a herbicide to treat broadleaf weeds in a cereal crop cannot substitute a herbicide which treats broadleaf weeds in grasslands. At the narrowest level, the parties' products are used to treat broadleaf weeds in cereal crops, intensive/short-term grassland, permanent pastures and rough grazing grassland.³³
- 5.15 The Nufarm 2,4-D, MCPA and MCPP-p products were approved for use in both cereals and grassland. There were other products which could be used on both grass and cereals (without damaging either crop). However, several products were either only for use on grass or cereal, or were at least more suitable for one specific crop type. Indeed the majority of the herbicide brands named by the parties as competitors for 2,4-D, MCPA and MCPP-p-based herbicides for use on cereals were different from those named for use on grassland.
- 5.16 We therefore concluded that in general there was no demand-side substitution between herbicides used to treat cereal crops and those used to treat grassland, despite the fact there were some overlapping brands.³⁴ For completeness, we considered all possible substitutes that could be used on a given crop, including those registered for use on different crops as well.
- 5.17 However, we found that there was a high degree of substitutability between the herbicides used on different types of grassland. Farmers of intensive/short-term grassland and permanent pastures required the eradication of weeds to maximize their output and therefore revenues. For example, better grass (ie with fewer weeds) produces more grass for consumption by animals or better hay and silage. It therefore appeared that there was no difference between herbicides that could be used to treat intensive or short-term grassland and those to treat permanent pastures, as they were used for the same purpose (albeit over different time periods). While we were told that farmers of rough grazing grasslands were generally looking to control rather than eradicate weeds (as weeds had less direct impact on their revenue streams), the herbicides they used appeared to be the same.³⁵ In our view, this meant that there was no segmentation between herbicides that could be used to treat intensive grassland and rough grassland.³⁶
- 5.18 We therefore considered cereal farmers and grassland farmers to be separate customer groups, but for the purposes of the product market, we decided not to segment grassland farmers further. We considered the possible substitutes for each.

³³Intensive/short term refers to up to five-year rotations; permanent pastures means established grassland for grazing, for example dairy; and rough grazing grassland means uncultivated grassland mainly used for upland sheep.

³⁴There are also specific regulatory requirements for products used in cereals and grassland (see paragraph 5.72 and Appendix D).

³⁵There are no separate regulatory requirements for products used in different types of grassland (see paragraph 5.72 and Appendix D).

³⁶Some third parties did comment that rough grassland farmers were significant users of phenoxies and would have no choice of alternatives given the limited amount they were willing to spend on crop protection. However, they also considered that intensive farmers were unlikely to switch to alternative chemistries in response to a small but significant non-transitory increase in price and therefore did not suggest further segmentation of the market.

Range of herbicides that could act as substitutes for cereal farmers

5.19 This section considers the herbicides that might act as substitutes for cereal farmers. It also considers tank-mixing and pre-formulated mixes, and role of price-sensitive consumers.

2,4-D, MCPA, and MCPP-p as substitutes for each other

- 5.20 According to Central Science Laboratory (CSL) data, in 2007, of the Product Area Treated³⁷ (hectares) by herbicides in the UK, 31 per cent were treated with phenoxyes (either as a straight or mixed product). Nufarm suggested that, on average, 2,4-D was used less than 1 per cent of the time³⁸ to treat key weeds in cereals, whereas MCPA was used around 5 per cent of the time and MCPP-p around 20 per cent of the time.³⁹
- 5.21 Nufarm told us that these phenoxy products were substitutable for each other. However, the average price per hectare treated in cereals by its 2,4-D product⁴⁰ to control charlock, fat hen and volunteer oilseed rape (VOR) (£[~~xxx~~]) was lower, according to Nufarm, than its MCPA products (£[~~xxx~~]).⁴¹ According to Nufarm, the price per hectare⁴² for its MCPP-p products⁴³ to treat chickweed, fat hen, charlock, VOR and cleavers was in turn higher than MCPA (£[~~xxx~~]-£[~~xxx~~]). Considering that Nufarm stated that 2,4-D and MCPA had similar efficacy levels, the limited use of 2,4-D despite the lower prices indicated that they were not considered effective substitutes by customers.
- 5.22 We asked third parties about 2,4-D, MCPA and MCPP-p as potential substitutes. Third parties tended to identify the same products as technical substitutes, partial substitutes and complements to 2,4-D and MCPA. Dow told us it considered that customers may switch between low-value phenoxy products if prices increased by 5 per cent. Some third parties indicated that they may be substitutes under certain circumstances, but that in practice they were not used interchangeably. For example, the Association of Independent Crop Consultants (AICC) told us that MCPP-p was not a substitute in cereals for 2,4-D and MCPA as MCPP-p was used in autumn to treat certain weeds such as VOR, whereas 2,4-D and MCPA had a very narrow window of application in winter and were used mainly to treat thistles in cereals. While 2,4-D and MCPA can both be used, MCPA is used more often in the UK for historical reasons and because it is particularly effective against thistles.
- 5.23 However, the majority of third parties did not consider that the three phenoxyes were effective substitutes for each other at all. Third parties commented that they did have overlapping spectrums and therefore in some circumstances would be substitutable, but that they targeted different specific weeds and therefore farmers tended to use them for different reasons. No distributors or intermediaries stated that they had switched or would switch to an MCPA-based herbicide in response to a 5 per cent price increase in a 2,4-D or MCPP-p-based herbicide, or vice versa. In addition,

³⁷Product Area Treated refers only to the number of hectares which have been sprayed with each herbicide such that even if an area is sprayed more than once it is only counted once in the data (source: Kynetec Cereals & Linseed Data 2003–2007). This data is not consistent with the data available for grassland (see paragraphs 5.44 to 5.48) which refers to Super Developed Areas (SDA). The SDA data takes into account areas which are sprayed more than once (Source: Kynetec Grassland 2005).

³⁸By value.

³⁹See Table 1 in Appendix D for Nufarm's estimations on usage on different key weeds.

⁴⁰Depitox.

⁴¹Agritox 50 (Nufarm) and Agroxone (AH Marks).

⁴²See Table 3 in Appendix D for comparison with other parties' estimations on average price per hectare on cereals for phenoxyes and alternative products.

⁴³Compitox Plus, Duplosan, Clenecorn Super and Optica.

distributors did not consider that a significant number of farmers would switch following a similar price increase.

Other herbicides as substitutes for 2,4-D, MCPA and MCPP-p in cereal crops

- 5.24 Nufarm told us that there was a wide range of other herbicides which could be used to treat broadleaf weeds in cereal crops:
- (a) sulfonylureas (SUs);
 - (b) sulfonamides;
 - (c) pyridines;
 - (d) HBNs; and
 - (e) benzoic acid.
- 5.25 However, no third party indicated that it had switched away from 2,4-D, MCPA or MCPP-p to these other herbicides in response to recent price increases, and volume data provided by Nufarm indicated that monthly sales volumes following the May 2008 price increase (see Appendix H) had not fallen significantly (and in some cases had increased) relative to the same period in 2007.⁴⁴
- 5.26 Nufarm told us that while the alternative herbicides might be more expensive, these herbicides had other benefits, such as longevity of treatment, effectiveness and difference in spraying costs, which mean that they were considered a cost-effective alternative to phenoxies. No clear evidence was provided to support this.⁴⁵ Further, evidence from third parties did not support Nufarm's submission that these products were technical and/or cost-effective substitutes for 2,4-D, MCPA and MCPP-p in cereals.
- *Sulfonylureas*
- 5.27 Nufarm considered SUs to be the strongest substitutes, accounting for between 10 and 70 per cent of treatments of broadleaf weeds (depending on the key weed) in cereal crops. However, the majority of third parties did not consider SUs to be effective substitutes, instead considering them to be used more frequently as complements. A minority⁴⁶ felt that they were either partial substitutes (ie only in specific circumstances) or technical substitutes, but that they would be considerably more expensive and therefore not directly substitutable. Only [a manufacturer of non-phenoxy herbicides] said that some SUs could be a good substitute in cereals, as they covered a wide range of weeds, including most of those controlled by phenoxies, but they still agreed that they were more expensive.
- 5.28 Considering the specific SU herbicides identified by Nufarm as substitutes to 2,4-D and MCPA in cereals (see Table 2, Appendix D), few third parties considered SUs to be substitutes for phenoxies. No third parties stated that they would switch to SUs in

⁴⁴However, we were not able to take account of changes in other drivers of demand over the period and as we do not have a full season of sales data following the price increase we cannot conclude that the price increases were sustainable.

⁴⁵Nufarm provided one worked example (for use in grassland and therefore discussed below), but it indicated a price differential of over 5 per cent even taking into account the additional benefits.

⁴⁶Including industry groups, such as the AICC and the NFU, and distributors such as ChemSpec, Cornwall Farmers, Chemiculture, LW Vass, Harlow Agricultural Merchants, Brown Butlin, HL Hutchinson, Countrywide and [REDACTED].

response to a 5 per cent increase in the price of 2,4-D, MCPA and MCPP-p⁴⁷ in cereals.

- 5.29 The National Farmers' Union (NFU) told us that SUs could be considered a cost-effective substitute for MCPP-p in some circumstances, such as in winter cereals, even though they were slightly more expensive. However, they told us that in spring cereals, SUs and phenoxies were usually used together in a mixed product and therefore there would be little opportunity for substitution.

- *Sulfonamides*

- 5.30 Only [X] said that sulfonamides had some technical substitutability for phenoxies in cereals, but it considered the cost differentials to be significant. No other third parties considered sulfonamides to be effective substitutes and no third parties stated that they had switched or would switch to them in response to a 5 per cent increase in the price of 2,4-D, MCPA or MCPP-p for use in cereals.

- *Pyridines*

- 5.31 Third parties told us that pyridines were not widely used in cereals due to the limited weed spectrum treated. No third parties considered the specific pyridine herbicides identified by Nufarm for use on cereals ('Dow Shield' and 'Hurricane') to be cost-effective substitutes for 2,4-D and MCPA. Dow (which produces pyridines) told us that they could be used to replace phenoxies, but were significantly more expensive. No third parties stated that they had switched or would switch to pyridines in response to a 5 per cent increase in the price of 2,4-D, MCPA or MCPP-p for use in cereals.

- *HBNs*

- 5.32 The NFU told us that HBNs were used only in cereals, but were significantly more expensive than phenoxies. Only one customer, [a distributor], considered HBNs to be technical substitutes to phenoxies. No third parties stated that they had switched or would switch to HBNs in response to a 5 per cent increase in the price of 2,4-D, MCPA or MCPP-p for use in cereals.

- *Benzoic acid*

- 5.33 [A distributor] told us that a benzoic acid called Dicamba could be used as a partial substitute as it controlled similar weeds, but the majority of third parties did not consider it a substitute at all in cereals, and thought it was more often used as a complementary product. No customers indicated that they had switched or would switch to benzoic acid in response to a 5 per cent price increase in 2,4-D, MCPA or MCPP-p for use in cereals.

Tank mixing and pre-formulated mixes

- 5.34 'Tank mixing' is the practice whereby various products (herbicides, but also pesticides, fertilizers and other products) are mixed in the tank carried by a sprayer for application to a crop in the field. Nufarm told us that 65 to 80 per cent of the herbi-

⁴⁷We did not specifically ask customers about substitutability to MCPP-p, but no third parties indicated MCPP-p as a substitute product. We confirmed this with third parties.

cides used on cereals were tank mixed. This was confirmed by third parties, some of whom indicated that the proportion may be even higher (up to 90 per cent).⁴⁸ In addition, products were also sold in pre-formulated mixes.⁴⁹ The fact that different chemistries are often mixed together suggests that in some cases they are viewed as complements. This reduced the number of occasions on which the different chemistries could be viewed as substitutes.

- 5.35 Nufarm said that tank mixing facilitates switching, since an increase in the price of one herbicide could lead to a reduction in the proportion of that herbicide in the mix, and a corresponding increase in the other herbicide in the mix.
- 5.36 However, the AICC told us that in cereals there was limited scope for varying the proportion of a phenoxy herbicide used in a tank mix in response to a 5 per cent price increase of any one phenoxy herbicide. In particular, it was very rare that a tank mix including more than one phenoxy was used on cereal crop and the phenoxy that was used was for a specific purpose (ie to treat a specific weed). If the price of that phenoxy increased by 5 per cent, agronomists would not advise changing the proportions as the phenoxy would still be required. Overall they considered that the products used in a tank mix and their relative proportions were specific to the weed and crop to be treated, and therefore varying proportions following a 5 per cent price increase was unlikely.⁵⁰
- 5.37 Distributors commented that they would not recommend changes in the proportions of 2,4-D and MCPA used in tank mixes in response to a price increase. In particular, Hutchinson stated that the rate of the product used was the rate required to treat the target weed. It was more likely that a farmer would switch to an alternative product, if there was one, than change the rate used. In addition, Headland said that if a farmer had been recommended to use certain proportions, these are the proportions the farmer would use regardless of whether there is a change in the relative price of the inputs, as farmers follow the agronomist's advice.
- 5.38 With respect to pre-formulated products, Nufarm told us that the regulatory requirements for mixed products specify the proportions approved of each active ingredient, preventing formulators from varying the proportion of phenoxyes in a given mix in response to a price increase.⁵¹ Changing the proportion of a phenoxy used in a mix would require a formulator to register a new product (see Section 6).

Price-sensitive consumers

- 5.39 Several third parties also told us that when the new chemistries were introduced, those cereal farmers for whom the other chemistries were considered to be alternatives for their specific crop and weed situation did switch, as the new products were more effective for them. They therefore considered that within cereals, those customers that continued to use phenoxyes were effectively tied to using phenoxyes, as they did not consider the new chemistries to be a viable cost-effective alternative for

⁴⁸The higher estimate has been provided by the AICC and it was based on the farmers it advised. For completeness, we note that these proportions refer to tank mixes which may include different agrichemical products, ie herbicides, fungicides and insecticides, for spraying on to the field. As such, there may be cases where tank mixes include only one herbicide mixed with other non-herbicide products.

⁴⁹The AICC suggested that independent agronomists advise use of pre-formulated products less often than agronomists working for distributors, as they tend to favour mixing herbicides directly on the field.

⁵⁰The AICC did think that for 10–20 per cent of cereal farmers, MCPA and 2,4-D would be technical substitutes within their tank mix and therefore, following a 5 per cent price increase in 2,4-D, it would consider advising farmers to switch from using 2,4-D to MCPA, but it considered that a higher price increase would be required to induce any switching from MCPA to 2,4-D as 2,4-D was less well-known and less used in the UK.

⁵¹Except by a very small margin of flexibility built into the regulation.

their situation and would be extremely unlikely to switch to them following a 5 per cent price increase. This was contested by Nufarm.

Conclusion on substitutability in cereals

- 5.40 While SUs may be considered technical substitutes, we did not find them to be cost-effective substitutes for use on cereals. No other herbicide groups were considered to be technical substitutes. Overall there was no evidence of recent switching between different herbicide groups or that customers would consider switching or reducing the level of phenoxies in tank mixes in response to a 5 per cent price increase.
- 5.41 Nufarm told us that farmers often used the expert advice of the agronomists and that this influenced the purchasing decision made by the farmer. Distributors told us that in over 90 per cent of cases, farmers followed the advice received from their agronomist, and over 90 per cent of farmers used agronomists. As such, the fact that distributors informed us that they would not change their advice in response to a 5 per cent price increase indicates that farmers were also unlikely to switch. In addition, distributors specifically told us that they believed that very low proportions of farmers would consider switching to an alternative herbicide in response to a 5 per cent price increase.⁵² We therefore considered that a 5 per cent price increase would be profitable. This evidence was supported by industry groups including the NFU, the AICC and the Agricultural Industries Confederation (AIC).
- 5.42 In response to recent price increases by Nufarm, no third party indicated that it had changed the quantity of 2,4-D, MCPA or MCPP-p it had purchased or that it had changed the quantity of substitute products purchased.
- 5.43 In conclusion, we found no evidence to support a product market wider than the supply of 2,4-D, MCPA and MCPP-p-based herbicides, individually, in cereals.

Range of herbicides that can act as substitutes for grassland farmers

- 5.44 This section considers the herbicides that might act as substitutes for grassland farmers. It also considers tank mixing and pre-formulated mixes, and role of price-sensitive consumers.

2,4-D, MCPA and MCPP-p as substitutes for each other

- 5.45 Nufarm told us that 2,4-D and MCPA were used more on grassland than on cereals (see Appendix D, Table 4). This was supported by third parties. Overall, according to CSL data, in 2005 of all the SDA (hectares) treated with herbicides in the UK, 59 per cent was treated with phenoxies (either straight or mixed herbicides).
- 5.46 Nufarm considered that 2,4-D, MCPA and MCPP-p were substitutes when treating grassland. According to Nufarm, the average price per hectare⁵³ to treat docks, thistles, nettles and chickweed in grassland using its 2,4-D product⁵⁴ (£[£]) was lower than the cost per hectare to control docks and thistles using its MCPA products⁵⁵ (£[£]) or to control docks, nettles and chickweed using its MCPP-p prod-

⁵²Several distributors said that no farmers would switch; the maximum estimation was 10 per cent.

⁵³See Appendix D, Table 6, for comparison with other parties' estimations on average price per hectare on grassland for phenoxies and alternative products.

⁵⁴Depitox.

⁵⁵Agritox 50 (Nufarm) and Agroxone (AH Marks).

ucts⁵⁶(£[X]-£[X]). 2,4-D was used more frequently on grassland than on cereals, but still had limited use compared with MCPA. Considering that Nufarm stated that 2,4-D and MCPA had similar efficacy levels, the limited use of 2,4-D despite the lower prices indicated that they were not considered effective substitutes by customers.

- 5.47 Again, where we provided details of potential substitutes, third parties tended to identify the same products as technical substitutes, partial substitutes and complements to MCPA and 2,4-D. Dow told us that it considered that customers may switch between low-value phenoxy products if prices increased by 5 per cent. Some third parties indicated that they might be substitutes under certain circumstances, but that in practice they were not used interchangeably. For example, the AICC told us that MCPP-p was not a substitute in grassland for MCPA and 2,4-D as MCPP-p was not as good at treating perennial weeds, although it was considered better at treating some annual weeds. The AICC commented that MCPA and 2,4-D were substitutes in established grass, but not new grass. It also told us that they were often used together and therefore in some cases would be considered complements. However, where MCPA and 2,4-D were used in the same tank mix, it might be possible to vary the proportions in response to a price increase in one of the products.⁵⁷
- 5.48 In general, third parties did not consider that they were effective substitutes for each other at all. Third parties commented that the three phenoxyes did have overlapping spectrums and therefore in some circumstances would be substitutable, but that they target different specific weeds and farmers tended to use them for different reasons. No third party said that it had switched or would switch to an MCPA-based herbicide in response to a 5 per cent price increase in a 2,4-D or MCPP-p-based herbicide or vice versa.

Other herbicides as substitutes for 2,4-D, MCPA and MCPP-p

- 5.49 Again Nufarm told us that there was a wide range of other herbicides which could be used to treat broadleaf weeds in grassland. However, no third party indicated that it had switched away from 2,4-D, MCPA or MCPP-p to these other herbicides in response to recent price increases.
- 5.50 Nufarm again told us that while the alternative herbicides might be more expensive, these herbicides had other benefits. However, Nufarm provided only one worked example which indicated that [X] was still 9 per cent more expensive than Agritox (MCPA) in grassland, even when increased efficacy and other benefits were taken into consideration (see Appendix D). Based on Nufarm's calculation, we consider that a hypothetical monopolist of Agritox would still be able to increase prices by 5 per cent, without customers switching to [X].⁵⁸

⁵⁶Compitox Plus, Duplosan, Clenecorn Super and Optica.

⁵⁷Following a 5 per cent price increase in 2,4-D, it may recommend some variation in the proportions to increase the use of MCPA relative to 2,4-D, but a higher price increase would be required to induce switching from MCPA to 2,4-D as 2,4-D is less well known in the UK.

⁵⁸Nufarm said that it considered some farmers might attribute more or less value to the benefits of [X] it had identified, and therefore that some would be more likely to switch. However, equally, some might be even less likely to switch if they placed a lower value on these benefits. Therefore we considered it unlikely that levels of switching would be sufficient to prevent a price increase.

5.51 In addition, third parties did not agree that (a) SUs; (b) sulfonamides; (c) pyridines; (d) HBNs; and (e) benzoic acid were technical and/or cost-effective substitutes for 2,4-D, MCPA and MCPP-p in grassland.⁵⁹

- *Sulfonylureas*

5.52 SUs have only limited use in grassland as they control only a limited weed spectrum at a higher cost. No third parties considered that SUs (as a range of herbicides) were a direct substitute for phenoxies in grassland. Considering specific SU herbicides, some third parties considered 'Cimmaron' and 'Pinnacle' (both SUs) to be partial or technical substitutes for phenoxies, and few of those considered them to be cost-effective substitutes. Only one third party, [a distributor], indicated that it would switch some of its demand for MCPA and 2,4-D to SUs in response to a 5 per cent price increase. All other third parties told us that they had not and would not consider switching for a 5 per cent price increase.

- *Sulfonamides*

5.53 Only [X] told us that Asulox (a sulfonamide) controlled a similar range of weeds to 2,4-D and MCPA and that it would consider switching some of its demand to it in response to a 5 per cent price increase. No other third parties considered sulfonamides in general to be technical or cost-effective substitutes to phenoxies.

- *Pyridines*

5.54 Nufarm told us that it considered pyridines to be the strongest substitute for phenoxies in grassland. Several third parties agreed that pyridines were good technical substitutes, but considered them to be substantially more expensive.

5.55 For example, Harlow Agricultural Merchants stated that on grassland there had been a small move towards pyridines due to greater efficacy.⁶⁰ Countrywide Plc and [X] also said that they were a good substitute in grassland in terms of functionality and efficacy, but Countrywide Plc told us that they were relatively expensive.

5.56 Considering the specific pyridine herbicides, some third parties considered 'Pastor' and 'Doxstar' to be partial or technical substitutes for phenoxies, but very few of those considered them to be cost-effective substitutes. Only one third party, [a distributor], indicated that it would switch some of its demand for 2,4-D and MCPA to pyridines in response to a 5 per cent price increase. All other third parties told us that they had not and would not consider switching for a 5 per cent price increase.

- *HBNs*

5.57 HBNs have limited use in grassland (only one product containing an HBN is registered for use on grassland).⁶¹ No third parties considered them to be technical or cost-effective substitutes. No third parties stated that they had switched or would switch to HBNs in response to a 5 per cent increase in the price of 2,4-D, MCPA or MCPP-p.

⁵⁹Nufarm told us that it did not consider sulfonamides and HBNs to be effective substitutes for 2,4-D, MCPA and MCPP-p in grassland. However, for completeness we have included them in our analysis.

⁶⁰However, with the recent restrictions on the application of Forefront, Harlow Agricultural Merchants expects this shift to stop.

⁶¹Swipe-p can be used on grassland. Swipe-p is a mixed product which includes HBNs and MCPP-p. It is therefore not clear that it would be considered a cost-effective substitute to straight MCPP-p following a 5 per cent price increase in MCPP-p technical acid as it also includes MCPP-p.

- *Benzoic acid*

- 5.58 [A distributor] and Agrovista said that Dicamba (a benzoic acid) could be used as a partial substitute as it controlled similar weeds, but the majority of third parties did not consider it a substitute at all in grassland and none said that it had switched or would switch to benzoic acids in response to a 5 per cent price increase in 2,4-D, MCPA or MCPP-p.

Tank mixing and pre-formulated mixes

- 5.59 In grassland, tank mixes were used less frequently than in cereals, but were still used 40 to 50 per cent of the time.⁶² Therefore, as discussed in paragraphs 5.34 to 5.38, the use of tank mixes and pre-mixed formulations would be expected further to limit the extent of any substitution away from phenoxies.
- 5.60 With respect to tank mixing, the AICC told us that there might be some scope for varying the proportions of phenoxies used in tank mixes where two or more phenoxies were used together, given that they had overlapping spectrums. However, where a phenoxy was mixed with a non-phenoxy, there was limited scope for varying the proportion of the phenoxy herbicide used in a tank mix as the phenoxy was used for a specific purpose (ie to treat a specific weed). Therefore, if the price of the phenoxy increased by 5 per cent, agronomists would not advise changing the proportions as the phenoxy would still be required. As discussed above, this was supported by third-party comments.
- 5.61 With respect to pre-formulated products, Nufarm told us that the regulatory requirements for mixed products specified the proportions approved of each active ingredient, preventing formulators from varying the proportion of phenoxies in a given mix in response to a price increase.⁶³ Changing the proportion of a phenoxy used in a mix would require a formulator to register a new product (see Section 6).

Price-sensitive consumers

- 5.62 While Nufarm contested that those farmers still using phenoxies were essentially tied to using them on cereals, Nufarm did acknowledge that it might be the case for upland graziers. Such rough grazing accounted for only 5 per cent of herbicide usage on grassland. It estimated that approximately £350,000 of combined Nufarm and AH Marks UK sales of 2,4-D and MCPA in 2007 were to rough graziers. However, we believe that while this is more likely to be the case for upland graziers, other grassland farmers have also made the decision to continue to use phenoxies despite the launch of newer products with additional benefits, and for these farmers a 5 per cent price increase is not expected to be sufficient to result in significant switching.

Conclusion on substitutability in grassland

- 5.63 While pyridines may be considered technical substitutes, we did not find them to be cost-effective substitutes for use on grassland. No other herbicide groups were considered to be technical substitutes. Overall, we found no evidence of recent switching between different herbicide groups, or that customers would consider switching or reducing the level of phenoxies in tank mixes in response to a 5 per cent price increase.

⁶²For completeness, we note that, compared with cereals, tank mixes in grassland are more likely to involve herbicides only, ie they do not include pesticides and fungicides.

⁶³Except by a very small margin of flexibility built into the regulation.

- 5.64 Nufarm told us that farmers often used the expert advice of the agronomists and that this influenced the purchasing decision made by the farmer. Distributors told us that in over 90 per cent of cases, farmers followed the advice received from their agronomist, and over 90 per cent of farmers used agronomists.⁶⁴ As such, the fact that distributors informed us that they would not change their advice in response to a 5 per cent price increase suggested that farmers were also unlikely to switch. In addition, distributors specifically told us that they believed that very low proportions of farmers would consider switching to an alternative herbicide in response to a 5 per cent price increase.⁶⁵ We therefore considered that a 5 per cent price increase would be profitable. This was supported by industry groups, including the NFU, the AICC and the AIC.
- 5.65 In conclusion, we found no evidence to support a product market wider than the supply of 2,4-D, MCPA and MCPP-p-based herbicides, individually, in grassland.

Derived demand

- 5.66 As discussed above, the technical acid and manufacturing concentrate account for only around two-thirds of the overall price of the phenoxy herbicides. On this basis, we formed the view that a 5 per cent price increase upstream would lead to a smaller price increase downstream and therefore that it is even less likely that there would be any switching at the downstream level, particularly when we considered the use of mixed herbicides. There was therefore no evidence to support wider upstream markets.

Format of supply

- 5.67 Most distributors purchased branded products in packaged format, whereas most formulators/mixers and packagers purchased non-branded bulk products (in large containers). Nufarm told us that there was no overlap between the parties at the formulated product level as AH Marks mainly supplied non-branded bulk product to intermediaries (formulators, mixers and packagers) and Nufarm mainly supplied branded, packaged products direct to distributors.
- 5.68 There was no demand-side substitution between bulk and packaged products⁶⁶ for these customer groups. A formulator/mixer required large quantities of the product to use on the formulation of its own products, and the role of a packager is by definition to take bulk, non-branded products and package and brand them. Purchasing 'retail'-size branded packages would not be a viable alternative. Similarly, a distributor does not necessarily have the facilities or capabilities to brand and package bulk quantities of these products and therefore would be unlikely to switch to purchasing bulk containers rather than packaged products in response to a price increase.
- 5.69 However, in our view the parties are still the closest competitors, despite the different formats, and the majority of third parties identified them as competing in the supply of phenoxy herbicides. This is considered further with respect to supply-side substitution below.

⁶⁴Farmers either hire an independent agronomist or use an agronomist who works for a distributor.

⁶⁵Several distributors said that no farmers would switch; the maximum estimation was 10 per cent.

⁶⁶We considered there to be demand-side substitution between branded and unbranded packaged product, but we have not considered this further because we are only aware of one unbranded packaged product sold by the parties (an MCPA mixture).

Supply-side substitution

- 5.70 Supply-side substitution, as opposed to entry, should usually occur within one year with little or no investment required in plant, equipment, skills or marketing.⁶⁷ However, in this case, the barriers to supply-side substitution were similar to the barriers to entry, specifically the regulatory requirements, and would prevent the rapid switching characteristic of supply-side substitution. We noted that the merger was completed in March 2008 and we received no evidence of new entrants supplying products to UK customers to date. Appendix D provides an assessment of supply-side substitution and Section 6 discusses the regulatory requirements in more detail.
- 5.71 We found that supply-side substitution at the technical acid level was limited by regulatory requirements, at the manufacturing concentrate level it was constrained by limited access to the relevant inputs (ie the technical acids) and at the formulated product level it was constrained by both regulatory requirements and limited access to the relevant inputs (ie the manufacturing concentrates).
- 5.72 In addition, we found that supply-side substitution between formulated products used on (a) cereals and (b) grassland was limited by the regulatory requirements. If a product was registered for use only on cereals, a new set of trials would be required to obtain approval for use on grassland. The time frames involved meant that this product would not be available sufficiently quickly for it to be considered as part of supply-side substitution.
- 5.73 Finally, we found that switching between supplying branded packaged products and non-branded bulk products was relatively straightforward, particularly given that it was possible, as AH Marks had done, effectively to outsource the packaging part of the process. We therefore considered that supply-side substitution between bulk and packaged products was possible and therefore that the market should not be segmented by format of supply.

Conclusion on product markets

- 5.74 Based on the evidence received, we found the following relevant product markets:
- (a) two separate markets for the supply of 2,4-D and MCPA technical acids to UK customers, due to lack of demand-side substitution and regulatory requirements which prevent quick and easy supply-side substitution;⁶⁸
 - (b) three separate markets for the supply of 2,4-D, MCPA and MCPP-p manufacturing concentrates to UK customers, due to lack of demand-side substitution, regulatory requirements and limited access to the required inputs which prevent quick and easy supply-side substitution; and
 - (c) six separate markets for the supply of 2,4-D, MCPA and MCPP-p formulated products to UK customers for use on (a) cereal crops and (b) grassland, due to lack of demand-side substitution, regulatory requirements (both for switching between production processes and separate testing requirements for cereals and grassland) and the limited access to the required inputs.
- 5.75 We did not consider each 'mixed' herbicide individually, but we note that the evidence shows that each herbicide was used to treat a specific weed/crop combination

⁶⁷ *Merger references: Competition Commission Guidelines*, CC2, June 2003, paragraphs 2.20 and 2.21.

⁶⁸ For completeness, we did not consider it necessary to conclude on whether there was a separate market for the supply of MCPP-p technical acid to UK customers, as Nufarm and AH Marks did not have any UK customers,

and there was very little evidence of any switching in response to a 5 per cent price increase. In addition, the lower proportions of phenoxy technical acids in mixed herbicides implies that a 5 per cent price increase at the technical acid level of the supply chain would result in an even smaller price increase downstream and would therefore be unlikely to result in higher levels of switching. This in turn supports a narrow upstream market considering that demand for the technical acids is a derived demand.

- 5.76 For each of these 11 markets, we include the ability to supply the UK market (ie the ownership of the relevant EU and UK licences) as a necessary part of the product market separate from the geographic market definition below.

Geographic market

- 5.77 To supply UK customers it was necessary to have certain licences, but it was not necessary to be located in the UK to obtain those licences. We considered the ability to supply UK customers in terms of ownership of the appropriate licences as part of the relevant product market, and in order to determine the relevant geographic market we considered the other physical factors relevant to supplying the UK, such as transport costs, import duty etc. However, we note that the geographic market definition is simply a framework for considering the competitive effects of the merger.
- 5.78 The evidence was that these phenoxy products were regularly transported around the world, that transport costs are low as a proportion of total costs and that there were limited barriers to supplying UK customers from outside the UK once the relevant EU and UK licences have been acquired.
- 5.79 However, in this case, given the limited number of actual and potential competitors, we considered the constraint exerted on Nufarm by each one individually and therefore it was not necessary to make definite conclusions with respect to the geographic market definition.

6. Market entry

- 6.1 Having defined the markets relevant to the supply of 2,4-D and MCPA technical acids, and of 2,4-D, MCPA and MCPP-p manufacturing concentrates and formulated products for use on cereals and grassland, this section sets out the barriers that we find to entering or expanding in those markets. It first describes the applicable regulation. Second, it describes barriers to importing and producing technical acids and manufacturing concentrates. Third, it describes barriers to importing and producing formulated products.
- 6.2 We consider barriers to entry before assessing the competitive effects of the merger because understanding the applicable regulation and its effect on market entry is key to understanding the markets.

Applicable regulation

- 6.3 Any entry must comply with applicable EU and UK regulatory regimes. The relevant legislation covering the manufacture and marketing of herbicides is EU Directive

91/414/EEC (the Directive), and the UK Plant Protection Products Regulations (PPPR).⁶⁹

- 6.4 The Directive provides a two-stage assessment system. First, it harmonizes the process for considering the safety of active substances at the EU level. It provides for the establishment of a positive list of active substances (which forms Annex I of the Directive) that have been shown to be safe and do not pose significant risks to people or the environment. To be authorized under Annex I, applicants must submit data, as described in Annex II of the Directive, on the safety of the active substance.⁷⁰ 2,4-D, MCPA and MCPP-p are all included in Annex I.
- 6.5 Second, it allows formulated products containing Annex I active substances to be approved at member state level. Annex III sets out the required tests and studies which a formulated product must undergo to be authorized for marketing within a member state.⁷¹
- 6.6 PPPR implements the Directive in the UK.⁷² The Pesticide Safety Directorate (PSD) (an agency of the Health and Safety Executive) acts as the relevant authority for Great Britain⁷³ approving new products and changes to the use or formulation of an existing product⁷⁴ (including changes in source of the active substance), and the import of a product from another country identical to one approved in the UK (ie parallel imports).
- 6.7 Once an active substance has been included in Annex I, whoever created the 'data package' (the notifiers) on which Annex I inclusion was granted is afforded a period of 'data protection'.⁷⁵ During this period, no third party can use the data package to support its own application for approval of the same product (whether active substance or formulated product) without the permission of the notifiers. Once data protection has expired, third parties can rely on the data package created by the notifiers without permission, for the purpose of obtaining authorization of their own products (whether active substance or formulated product).⁷⁶
- 6.8 2,4-D's data protection expired in October 2007. This means that any third party could use the 'data packages' without cost in its active substance application.
- 6.9 MCPA's data package was produced by an industry task force⁷⁷ comprising Nufarm, AH Marks and Dow AgroSciences (Dow). MCPA was included in Annex I in May

⁶⁹REACH (Registration, Evaluation, Authorisation and restriction of Chemicals), which came into force on 1 June 2007, does not affect the regulatory framework for herbicides due to the existence of EU Directive 91/414/EEC which is more specific.

⁷⁰Applications for Annex I approval of an active substance are made to an individual member state's regulatory body for plant protection products. It will submit a Draft Assessment Report (DAR) to the European Food Safety Authority (EFSA). The EFSA undertakes its own detailed scientific scrutiny of the evaluation and risk assessments and presents its conclusions to the European Commission (the EFSA conclusion). The EFSA conclusion is considered by member states and the Commission. The Commission produces a proposal which, if for inclusion, is subject to a vote by member states followed by adoption and publication.

⁷¹The active substance(s) in the formulated product must have been included in Annex I or be currently under review for inclusion in Annex I.

⁷²PPPR supersedes the Control of Pesticide Regulations (COPR) 1986. Following the implementation of the Directive and PPPR, there was a transition period where active substances which were previously approved under COPR continued to be so until the active substance was included on Annex I. Each of 2,4-D, MCPA and MCPP-p were previously approved under COPR.

⁷³Northern Ireland has similar regulations that mirror that of Great Britain. With respect to the issue of approvals, the Department of Agriculture and Rural Development, Northern Ireland, replicates PSD approvals documentation.

⁷⁴Nufarm said: 'Formulated products are made to a "recipe" according to the product authorization. For this reason, it is not possible to simply swap ingredients within a registered product'.

⁷⁵Active substances which were in existence when the Directive came into force (including 2,4-D, MCPA and MCPP-p) were given five years' data protection from the date of their inclusion in Annex I.

⁷⁶If data protection has expired, reference can be freely made to the manufacturer's data which, in the UK, will be held on a database by the PSD.

⁷⁷A task force is a group of companies that share the burden of producing the data required to show that an active substance has met the standards set out by the tests and studies listed in Annex II.

2006, and the data package was protected until May 2011. If a third party wished to use any part of the protected data for its own active substance registration, then each task force member must agree to such use before access is granted.⁷⁸ However, any member of the task force might, unilaterally, grant access to protected data to a third party via a Letter of Access for the purposes of use in that third party's downstream formulated product registration.

- 6.10 MCPP-p's data package was submitted by an industry working group (which became the MCPP-p Task Force) which, after several acquisitions including this merger, Nufarm controlled exclusively. Nufarm therefore had exclusive access to the MCPP-p data package until June 2009, when the MCPP-p data protection expires.
- 6.11 The extent of access to the data package required by an entrant depends on the data it already holds for the active substance. So, if the third party had already generated a data package for the active substance for a different registration process, it might be able to re-use that data.

Barriers to import and to starting production of technical acid and manufacturing concentrate

- 6.12 We considered the options for entry through import of the technical acid and manufacturing concentrate levels together, since producers of technical acid typically also produce manufacturing concentrate. This section considers (a) how the regulatory barriers affect a potential importer of each of the active substances and identifies possible sources of the respective technical acids or manufacturing concentrates; (b) transport costs; (c) the capacity of existing manufacturers; (d) quality issues; (e) the costs of starting to manufacture; and (f) the incentives to import technical acid or manufacturing concentrate.

Effect of regulation on import of 2,4-D technical acid or manufacturing concentrate

- 6.13 The data protection for 2,4-D expired in 2007, so an entrant could freely refer to the original data package to assist in obtaining equivalence recognition. Entry into 2,4-D technical acid supply was thus simpler than for MCPA as a new entrant did not have either to generate its own Annex II data or negotiate with the task force for access to its data. Appendix E, Figure 1, sets out the process for entry.
- 6.14 Nufarm believed that Rokita-Agro SA (Rokita⁷⁹) was the most likely entrant. Rokita's 2,4-D technical acid was positively evaluated by the Polish Ministry of Agriculture and Rural Development for equivalence in 2007, with an evaluation report and specification published in CIRCA database⁸⁰ in September 2008. Rokita's 2,4-D technical acid could therefore be registered in the UK in up to nine weeks and cost £520.⁸¹ Rokita told us that while it had no specific strategy to enter the UK at present, if

⁷⁸By law, access must be granted in certain circumstances, for example in relation to vertebrate studies which show an active substance's effects. Nufarm said that the task force was required to negotiate with third parties for access to protected vertebrate studies in order to avoid unnecessary animal testing. It stated that the MCPP-p Task Force had previously given access for a fee to Sarzyna for this purpose.

⁷⁹Rokita-Agro SA is currently part of PCC Rokita SA, a chemical company. On 30 July 2008, Makhteshim Agan Industries Ltd offered to acquire Rokita-Agro SA from PCC Rokita SA. We understand that at present this transaction has not been concluded. Rokita-Agro SA produces 2,4-D acid technical and numerous formulated products (herbicides) containing 2,4-D acid as sodium salt, dimethylamine (DMA) salt and 2-ethylhexyl ester. Rokita is also a distributor of both its own products and selected pesticides produced by other companies.

⁸⁰CIRCA (Communication and Info Resource Centre Administrator) is a confidential database run by the European Commission to allow information sharing between EU institutions, member states and other relevant stakeholders.

⁸¹This would be on a 'no data stream' basis.

approached by a UK customer it would be able to start supplying UK customers within a short period and at a relatively low cost.

- 6.15 Nufarm also believed that there were potential entrants from China, India and Latin America, which although they have not submitted data to show equivalence of their technical acid were capable of doing so and therefore entering the UK market. For these sources, there may be an additional cost of up to £20,000 to generate the Five Batch Analysis,⁸² if this were necessary.
- 6.16 We investigated potential entrants and found that some were taking active steps to enter the UK market. Sharda Worldwide Exports told us that it was going through an application for consideration by the UK of the technical equivalence of a new 2,4-D manufacturing source with 2,4-D manufactured by Swati Chemical Industries.⁸³ Atul also told us that it was in the process of registering 2,4-D in the EU and the UK and had definite plans to enter the UK market, although it was not clear what the relevant timescales would be.⁸⁴

Effect of regulation on import of MCPA technical acid or manufacturing concentrate

- 6.17 A UK-approved formulated product must have a source for its technical acid approved by the PSD. A producer of formulated product cannot therefore switch to an unapproved source. To gain approval, the technical acid manufacturer must prove 'equivalence'⁸⁵ of its active substance to the Annex I specification. To do this, it must either (a) obtain a Letter of Access from, or join, the MCPA Task Force (for a fee);⁸⁶ or (b) produce its own Annex II data package. Appendix E, Figure 2, sets out these entry options.

Obtaining a Letter of Access or joining the Task Force

- 6.18 Nufarm argued that for cost reasons obtaining a Letter of Access or joining the Task Force was likely to be a more attractive option than producing the Annex II data. However, significant sums of money had been invested by the members of the Task Force, to gain approval of the active substance and to market the product. As such, the costs to a third party to gain access to this data could be substantial.⁸⁷ A third party may, however, not require access to all the Task Force's data as it may already have relevant data from its own studies for other approval applications. As such, the precise cost for access would depend on the nature and extent of the data it required.

⁸²Five Batch Analysis—five production batches of an active substance from a source of manufacture that must be analysed in order to establish that its technical specification is equivalent to an active substance that is already registered under Annex I. The requirements of the analysis are included at paragraph 1.11 of part A of Annex II.

⁸³Sharda Worldwide Exports has previously registered generic versions of Diquat herbicide and Imidacloprid insecticide for use in the UK.

⁸⁴Atul is the third largest producer of 2,4-D worldwide. It told us that it saw its main European markets as Southern and Eastern Europe. Atul informed the OFT that it planned to submit data for UK registration in the first quarter of 2009. Atul had applied (in conjunction with Agrichem) for a new product, with Atul as the named manufacturing source. This application was refused as the specification was found not to be technically equivalent to the Annex I listed specification. Sharda Worldwide Exports Pvt Ltd told us that it had submitted an application for a new formulated product using a source of 2,4-D to be manufactured by Swati Chemical Industries (India). This application is in the first stage which involves the assessment of the Five Batch Analysis of the technical acid for equivalence.

⁸⁵Equivalence is the process of establishing that a new source of manufacture (eg a source other than from the original notifying parties) of an active substance is equivalent to an existing source that has already been approved. Equivalent is not synonymous with identical. It means that the product is within the parameters set by PSD.

⁸⁶MCPA Task Force members are Nufarm, AH Marks and Dow Agrosiences.

⁸⁷Nufarm set out the fee structure for taking a seat on the Task Force. The fee will take into account the amount spent by the original members of the Task Force plus various adjustments to take account of the age of the data, time invested by Task Force members and risk factors. [REDACTED]

- 6.19 In fact, no one has joined the Task Force, nor has any producer obtained a Letter of Access to individual studies except where required by law.^{88,89}

Producing Annex II data

- 6.20 Zakłady Chemiczne 'Organika-Sarzyna' SA (Sarzyna⁹⁰), a Polish manufacturer, had recently obtained equivalence for the sale of MCPA acid in Poland and could register MCPA for use in the UK. However, prior to publication of our provisional findings, Sarzyna told us that it had no plans to enter the UK market but would be willing to supply MCPA if approached by a UK entity. It had not been approached to date.
- 6.21 The PSD told us that if equivalence of a source to the Annex I specification had been ascertained by another member state (and data access was available), it could assess it for use in an approved UK product by referring to the 'Equivalence Report' written by that member state. Such an application would take up to nine weeks and cost £520.⁹¹
- 6.22 Nufarm believed that there were other potential suppliers of MCPA.⁹² However, Nufarm stated that as these suppliers had not generated the Annex II data needed to register an MCPA source in the EU, they were likely to wait until after May 2011 before seeking to enter the UK market. Atul told us that it was undergoing an internal review regarding whether to restart production of MCPA, and that if it did decide to enter the EU market it would consider supplying the UK. However, it noted that some investment would be required and it would need to obtain the necessary EU and UK approvals. Therefore we do not at this stage consider that entry by Atul would be timely or likely.
- 6.23 We do not assess the position of Dow in this section, as it was already a member of the MCPA Task Force, no further regulatory investment was needed and its competitive situation is largely influenced by its agreements with Nufarm (see Section 9).

Effect of regulation on import of MCPP-p technical acid or manufacturing concentrate

- 6.24 There were no registered sources of supply of MCPP-p in the EU apart from AH Marks and Nufarm, and Nufarm did not manufacture MCPP-p.
- 6.25 MCPP-p is data protected until June 2009. As a result, an entrant would have either to (a) gain a Letter of Access from, or join, the MCPP-p Task Force⁹³ or (b) recreate the Annex II data itself. However, if an entrant waited until after June 2009, the Annex II data would not be protected and the entrant could use it freely as part of its manufacturing source application. Nufarm argued that entry could occur within

⁸⁸Nufarm told us that Sarzyna approached the Task Force in 2003, expressing an interest in joining to gain registration for its products both within and outside Poland, following Poland's accession to the EU. An offer to join the Task Force was made to Sarzyna, although no fee was quoted, which was declined. The Task Force offered Sarzyna access to a number of vertebrate studies but Sarzyna declined this offer. The Task Force believed that it did so because Sarzyna could obtain the required studies cheaper elsewhere.

⁸⁹[REDACTED]

⁹⁰Z Ch 'Organika-Sarzyna' SA is a subsidiary of Ciech SA. Its produces MCPA as technical acid and as a formulated product under the brand name CHWASTOX.

⁹¹Timescales and costs are based on the application being processed using the 'no data stream', ie the PSD would not have to analyse any new data as part of the approval process. Approval of a new source would take 18 weeks maximum via data stream (to evaluate batch analysis data and compare specifications) subject to no requirement for the PSD to obtain additional data.

⁹²Atul Ltd (India) and various Chinese suppliers including: Jiangsu Alliance Agrochemical Co Ltd; Shangdong Rainbow Chemical Co Ltd; Jiamusi Heilong Agrochemical and Industrial Chemical Ltd (part of ChemChina—ChemChina Agrochemical Corporation is a wholly-owned subsidiary of ChemChina); Jiangsu Jiangu Chemical Co Ltd; Shandong Qiaochang Chemical Co Ltd; Wintafone; and Hangzhou Darong Trade Co Ltd.

⁹³Nufarm following the merger is the only MCPP-p Task Force member.

18 weeks⁹⁴ of data becoming unprotected as an entrant could prepare its own data and submit it to the PSD for preliminary approval.

- 6.26 Outside the EU, Nufarm stated that it was aware that Nutrichem Jiangsu and Flag Chemical Industry Co (located in China) also produce MCPP-p. We attempted to obtain information from the Chinese companies identified by Nufarm, but they did not respond to our requests for information. In addition, no third party considered such companies to be a source of MCPP-p.
- 6.27 Nufarm also stated that it had previously received an offer to supply MCPP-p (in either technical acid or formulated product form) from the Dutch company Simonis BV, which produces MCPP-p in Asia. However, Simonis BV told us that it did not make MCPP-p, sell it or intend to do so. From this, we considered that entry was not sufficiently imminent to act as a competitive constraint on Nufarm.
- 6.28 The CC found no evidence of any company taking active steps to enter the UK market for MCPP-p in the last 12 months.

Transport costs

- 6.29 Technical acid was transported worldwide. Nufarm produced 2,4-D for use in the UK in Austria and MCPA in the Netherlands. Nufarm also transported 2,4-D and MCPA technical acid and some manufacturing concentrate worldwide. AH Marks exported [90–100] per cent of its straight 2,4-D and MCPA, [30–40] per cent of its 2,4-D mixtures, and [10–20] per cent of its MCPA mixtures in 2007/08. In addition, technical acid was manufactured and transported by other third parties around the world. Dow told us that it supplied 2,4-D in Europe from the USA and Poland; Rokita, Sarzyna and Atul all said that they supplied worldwide.
- 6.30 Nufarm provided estimates of AH Marks's transport costs⁹⁵ and Nufarm's costs relating to its importation of Glyphosate technical acid/manufacturing concentrate from China⁹⁶ in 2007/08. The data showed that its transport cost were [0–10] per cent of AH Marks's sales or Nufarm's purchase price. A third party estimated transport costs for technical acid at between 5 and 10 per cent.
- 6.31 Third parties did not view transport costs as a barrier to entry. For example, Headland said that it did not believe that transport costs were a barrier to entry as it imported from all over the world with other products.
- 6.32 For the reasons stated above, we did not consider that transport costs acted as a barrier to entry for technical acid or manufacturing concentrate.

Capacity

- 6.33 For import to be an effective entry route, the potential importers must have sufficient spare capacity in technical acid manufacture to cover current UK demand, which Nufarm estimated at [§] for 2,4-D and [§] for MCPA. In relation to MCPP-p, AH Marks produced [§] for UK and export. We did not consider capacity in relation to

⁹⁴Approval of a new source would take 18 weeks maximum via data stream (to evaluate batch analysis data and compare specifications) subject to no requirement for the PSD to obtain additional data.

⁹⁵AH Marks's transport costs in 2007/08 within the UK and Europe as a proportion of net sales for technical acid were below [§] per cent and for manufacturing concentrate below [§] per cent. For worldwide sales, its transport costs for technical acid were [§] per cent and for manufacturing concentrate [§] per cent.

⁹⁶Nufarm was not able to provide similar data for itself but said that it believed its transport costs did not differ significantly from AH Marks.

manufacturing concentrate as a constraint for assessing barriers to entry, as it was an intermediate product which relied on technical acid capacity for its volume.

- 6.34 Nufarm argued that as the equipment used in the manufacture of herbicides was largely the same across the chemical industry, and common production assets were used for the production of the different technical acids, manufacturing concentrates or formulated products, a manufacturer did not require dedicated equipment for the manufacture of either 2,4-D or MCPA. Third parties also stated that in the case of 2,4-D and MCPA the chemistry was uncomplicated and so it should be relatively straightforward for production to be switched between the products, provided the relevant licences for each were owned. As a result, it is therefore reasonable to assume that spare capacity could be applied to either production process, if a company manufactured both 2,4-D and MCPA.
- 6.35 Nufarm argued that it was possible for MCPP-p assets to be switched to production of MCPA, but that to switch MCPA assets to producing MCPP-p may be more difficult. This depends on the configuration of the production plants. Nufarm said that it would incur significant costs and take several months to modify either Wyke's or Botlek's MCPA production assets to produce MCPP-p.⁹⁷ However, Nufarm also said that Botlek's facilities, prior to decommissioning of certain assets, could have switched production relatively easily and that it may be easy for other manufacturers to switch, depending on the production assets available to them.
- 6.36 Nufarm provided estimates of worldwide capacity for 2,4-D and MCPA, which are shown in Appendix E, Table 1. Nufarm estimated that worldwide capacity for both 2,4-D and MCPA was [REDACTED] with an estimated production of [REDACTED]. While it was not possible to confirm all of Nufarm's estimates of capacity, the responses we received indicated that the main potential entrants had sufficient capacity to satisfy UK demand. [REDACTED] said that it believed there was excess capacity on a global basis.
- 6.37 It was not possible to obtain similar figures for MCPP-p. However, the limited number of worldwide producers, the relatively large use of MCPP-p in the UK compared with the global market, and the uncertainty regarding the ease of switching production from MCPA/2,4-D to MCPP-p indicated that capacity might be an issue in this market.

Quality issues

- 6.38 Some third parties questioned whether technical acid from outside the UK would meet the necessary quality and technical specifications. However, other third parties commented that as long as a company had the relevant EU and UK licences, they would have no concerns regarding purchasing from a non-UK-based supplier.
- 6.39 Nufarm argued that although some of the worldwide producers' products were not as high quality as others, in practical terms this tended to mean that the technical acid included some impurities that must be removed during the production process of the manufacturing concentrate. Nufarm, however, believed that this did not render the end product inferior. It said that the compensation for the less pure acid was generally a lower price. Another third party, United Agricultural Products, said that in relation to non-UK suppliers 'there are quality and supply issues but there are quality and supply issues with major existing UK suppliers. The core issue is the registration barrier'.

⁹⁷Nufarm estimate costs of US\$[REDACTED] million and a time frame of [REDACTED] months.

- 6.40 We consider that although there may be some concerns over quality, it was not a significant barrier to entry.

Cost of starting to manufacture technical acid or manufacturing concentrate

- 6.41 Having assessed the potential importers of 2,4-D, MCPA and MCPP-p and the potential barriers to their entry, this section considers entry that requires starting to manufacture technical acid or manufacturing concentrate.

Technical acid

- 6.42 In relation to technical acid, a manufacturer of MCPA technical acid could switch from its current technical acid production to 2,4-D and vice versa. We understand that plant is interchangeable, allowing a manufacturer to switch production between these products if required. In addition, a manufacturer of MCPP-p could potentially switch production to MCPA depending on the manufacturer's plant. Switching from MCPA to MCPP-p is, however, more difficult. Nufarm estimated that switching production at its Botlek plant, for example, would take [X] months and cost approximately US\$[X] million. Switching non-phenoxy technical acid production facilities to the production of phenoxy technical acids was even more time-consuming and costly.
- 6.43 Alternatively, a chemical company could install production capacity to start producing 2,4-D, MCPA or MCPP-p technical acids. Bayer submitted that manufacturing plants were capable of producing products from more than one sector and the costs and timescales would not necessarily be different for a chemical manufacturer producing similar chemistry products entering the herbicide market than for one currently producing herbicides. It estimated that for a company to establish production facilities, if suitable reaction vessels were in place and the process was similar to existing production processes, the cost would be around £500,000. However, for a company not currently manufacturing agrochemicals or similar, full start-up costs would be significant.
- 6.44 In relation to MCPP-p, Nufarm believed that Sarzyna might enter the market, as it was producing MCPP and therefore could produce MCPP-p with only a minimal capital outlay. Further, we understood from Nufarm that Sarzyna recently approached it with a request for a quote for L-CPA, which Nufarm assumed was for the manufacture of MCPP-p and/or 2,4-DP-p. Nufarm also believed that Sarzyna had made applications to the Polish authorities for registrations of MCPP-p technical acid and formulated herbicides because Sarzyna had requested and obtained a Letter of Access from the MCPP-p task force to certain Annex II studies for this purpose.
- 6.45 Sarzyna confirmed that it was using L-CPA (which it had purchased from AH Marks) to conduct a Five Batch Analysis for MCPP-p in order to obtain Annex II approval for its MCPP-p source. Sarzyna said that while it had no specific plans to enter the UK market, if it gained Annex II approval it would assess markets for possible entry, including the UK. Sarzyna told us that the earliest it would expect to be able to sell a formulated product in the UK was autumn 2010.
- 6.46 Dupont said that it believed it was unlikely that any company would enter this market in the UK alone due to the size of the market and the costs involved. It would accordingly appear reasonable to assume that entry into 2,4-D, MCPA or MCPP-p was more likely by a company with a worldwide agrochemical portfolio.⁹⁸ However, [X],⁹⁹

⁹⁸Current phenoxy producers have already been covered in the section on importation.

[redacted] and Syngenta¹⁰⁰ all said that they were not considering at present entering the UK market primarily as a result of phenoxies being an 'old chemistry' which earned low margins.

- 6.47 We found that the costs of setting up plant and creating manufacturing capacity would be substantial for a completely new entrant. However, for companies currently active in the sector, the costs did not amount to a significant barrier to entry.

Manufacturing concentrate

- 6.48 We considered entry at the manufacturing concentrate level for 2,4-D, MCPA and MCPP-p could occur by either: (a) forward integration (ie a technical acid manufacturer starting to produce manufacturing concentrates) which may require installing new plant or expanding capacity, or (b) backward integration (ie a formulator, or potentially even a distributor, starting to produce the manufacturing concentrates) which would require installation of manufacturing plant.
- 6.49 With regard to forward integration, Nufarm estimated that the extension of a technical acid synthesis plant to one capable of also producing manufacturing concentrates would take approximately [redacted] months and would cost approximately £[redacted]00,000. This would involve purchasing and installing mixing vessels, storage facilities and pipe work. However, the majority of technical acid producers and all the main potential entrants highlighted by Nufarm produced manufacturing concentrate already. Accordingly, this form of entry is more accurately considered under import.
- 6.50 Backward integration could occur through formulators that purchase manufacturing concentrate from third parties self-supplying by purchasing 2,4-D, MCPA or MCPP-p technical acid in flake form and converting it, either themselves or through a toll manufacturer into manufacturing concentrate.
- 6.51 Nufarm said that several formulators had in the past produced manufacturing concentrate for their customers by purchasing technical acid and carrying out the chemical process themselves. In the UK, Nufarm said that there were several toll manufacturers¹⁰¹ capable of manufacturing and supplying 2,4-D and MCPA manufacturing concentrates. It also said that large formulators, such as UPL, had previously provided toll manufacturing services to third parties, including producing manufacturing concentrate from technical acid flake. Nufarm believed that there was no reason why UPL would not take similar steps, and either start producing manufacturing concentrate for its own use or for supply to third parties, if prices were to rise.
- 6.52 Nufarm estimated that the conversion of a plant that only made formulated product to one capable of producing manufacturing concentrate would take no more than approximately [redacted] months and would involve costs in the region of £[redacted]00,000.¹⁰² These costs could be lower as many companies already had some assets in place.
- 6.53 Although formulators could develop manufacturing capability, for this to make commercial sense the formulator must have, first, an approved source of technical acid (which is covered above) and, second, access to a formulated product registration. While formulators did own formulated product registrations, several told us that they would not consider backward integration into production of manufacturing concen-

⁹⁹[redacted] said that it had exited the UK market for these products due to its poor profitability and because they did not fit with its innovation-based product strategy. It was not considering re-entering the UK market for the same reasons.

¹⁰⁰Syngenta said that it had never been involved in the manufacture and supply of MCPA and/or 2,4-D herbicides in the UK and it has not considered entering the UK market.

¹⁰¹Nufarm gave as examples: Grosvenor Chemicals Ltd; Grotech Production Ltd; and Safapac Ltd.

¹⁰²Conversion would involve purchasing and installing solids handling equipment and abatement equipment to absorb gases.

trate. [§] told us that, for example, it would only consider re-entering the UK market if there was an existing viable plant and associated registrations available for purchase. However, besides Nufarm's and AH Marks's plants and registrations, there was no alternative plant with associated registrations, and it did not believe that it was viable to build a new plant.

- 6.54 Again, we found that the costs of setting up plant and creating manufacturing capacity would be substantial for a completely new entrant. However, for companies currently active in the sector, the costs did not amount to a significant barrier to entry.

Incentive to import technical acid or manufacturing concentrate

- 6.55 The key issue for a technical acid or manufacturing concentrate manufacturer is whether it could make sufficient sales to enable it to achieve its required return on the investment necessary to enter the market. To assess this, we needed to determine the size of the available market open to competition and whether it was sufficient to encourage entry. We therefore considered the number of formulated products whose registrations were not owned by AH Marks or Nufarm.
- 6.56 Appendix E, Tables 2 and 3, set out those companies that have formulated products approved for use in the UK, and the number of product registrations they own. They show that AH Marks and Nufarm hold the majority of such approved formulated products in 2,4-D, MCPA and MCPP-p for use in grassland and cereals (ranging from 55 to 80 per cent). In addition, excluding AH Marks and Nufarm, the majority of companies each hold only a few registrations.
- 6.57 We considered that despite the fact that Nufarm and AH Marks own the majority of the registrations, a new entrant would still have several identifiable routes to market (in terms of products to supply with technical acids/manufacturing concentrates). We considered that the key issue was not the number of registrations owned by companies other than Nufarm and AH Marks, but that relevant registrations existed and the barriers to expanding the production of a specific formulated product were relatively low. In this case, there were straight product formulations, as well as a number of mixed formulations, owned by third parties.¹⁰³
- 6.58 We also considered that the costs of expansion for a specific approved product were relatively low given the availability in the UK of third parties who could manufacture formulated products under toll agreements.¹⁰⁴ In addition, although there were a number of specific mixed formulated product registrations owned by Nufarm/AH Marks, for which third parties did not own an identical or almost identical product registration, we considered that the cost of registering new formulations might be lower for a manufacturer which already had registrations which included a phenoxy, as the manufacturer could use some of its existing data in the registration process.
- 6.59 It was not possible to assess with any degree of certainty how many customers a new entrant would need to supply for entry to be financially viable. Nufarm argued that if a third party were to win 10 per cent of sales in any one of the markets, that would be sufficient to cover the costs of entry in that market. We considered the likely costs, revenue and margins, to assess if this was reasonable.

¹⁰³We note that since each company holds only few registrations, a new entrant might have to supply several of them to capture sufficient market share for entry to be financially viable; however, Agriphar with only six 2,4-D product registrations was able to switch supplier from Nufarm to [§].

¹⁰⁴Nufarm gave as examples: Bayer (in Norwich), Exwold, Grosvenor, Safapac (all in the UK), Barclays (Ireland), Stahler, Schirm (Germany) and Kwizda (Austria).

- 6.60 Appendix E, Figure 1, sets out our estimates of the costs of entry into the UK market for the supply of 2,4-D technical acid assuming the potential entrant is already manufacturing 2,4-D.¹⁰⁵ We estimated costs of up to £20,000 for a Five Batch Analysis and £2,600 for PSD approval.¹⁰⁶ For MCPA, Nufarm did not argue that entry would occur before May 2011 when MCPA loses its data protection (although Sarzyna might enter before then). We therefore considered the cost of entering the UK market for the supply of MCPA technical acid, post 2011, to be similar to those observed for 2,4-D.¹⁰⁷
- 6.61 We estimated that capturing 10 per cent of the UK market might entail revenue of approximately £100,000 a year for 2,4-D and £250,000 to £300,000 for MCPA. We considered that it was reasonable to assume gross margins of approximately 30 to 50 per cent. On this basis, we considered that Nufarm's assertion that a 10 per cent market share would be sufficient to make entry profitable is reasonable (ie we considered the payback period for entry into the UK market for a current manufacturer of 2,4-D or MCPA technical acids to be relatively short).
- 6.62 For MCPP-p, we considered the situation to be slightly different. Again, we considered entry to be unlikely until MCPP-p lost its data protection, but in this case we were not aware of any existing manufacturers of MCPP-p. Therefore we considered the cost of entry into the UK market, even after the loss of data protection, to be considerably higher than the costs of entering the UK market for 2,4-D and MCPA, as a new entrant would also have to incur the costs of establishing manufacturing facilities. Nufarm estimated that the cost of restarting production of MCPP-p at its Botlek factory would be in the region of US\$[~~2~~] million. On this basis, we considered that the payback period for entry into the UK supply of MCPP-p technical acid would be considerably longer, despite a slightly higher revenue expectation.¹⁰⁸ We therefore considered that the incentives for entry into MCPP-p are lower than for 2,4-D and MCPA.

Barriers to import and to starting production of formulated products

- 6.63 This section considers entry into the UK with a new formulated product and assesses: (a) how the regulatory barriers affect a potential importer of a formulated product; (b) transport costs; and (c) the costs of starting to manufacture.

Regulatory barriers

Cost of registering a new formulation

- 6.64 No formulated product may be used in the UK unless it has been approved by the PSD. Annex III of the Directive sets out the tests that a formulated product must undergo before it may be approved.
- 6.65 Nufarm submitted estimates (based on recent Nufarm applications) of the cost of obtaining such approval for a new generic formulated product. Its estimates were

¹⁰⁵As discussed in the sections above, we were aware of a number of such companies and considered them to be the most likely entrants.

¹⁰⁶We note that this does not include transport costs, which were expected to be relatively low (see paragraph 6.32), or internal management and/or marketing costs.

¹⁰⁷We assumed that the most likely new entrants would be those already producing MCPA but currently without the relevant EU approvals.

¹⁰⁸We estimated that 10 per cent of the UK MCPP-p market was approximately £450,000–£500,000. In addition, we considered that it might be difficult for a new entrant to capture 10 per cent of the MCPP-p market, as prior to the merger the value of Nufarm and AH Marks sales of MCPP-p technical acid to third parties was less than £450,000.

£30,000–£50,000 for a straight product¹⁰⁹ and £100,000 for a mixed product.¹¹⁰ In both examples the active substances had lost data protection during the registration process. The costs therefore did not include the cost of creating internally all the required Annex III data. The actual cost to develop formulation data would also vary depending on factors such as the formulation type, crops that the product will be used on and application rate as well as the chemical, toxicological and ecotoxicological properties of the relevant active substance(s).

- 6.66 The time frame for data generation for Nufarm's straight product was 26 months, although Nufarm submitted that it could have been as little as six to eight months (the time period for the efficacy testing¹¹¹), if all data was generated simultaneously. Nufarm argued that the six- to eight-month time frame would allow the product to be registered for one planting cycle (eg winter cereal); as such, the product would require a further testing period to cover additional planting cycles (eg spring cereal). This testing could be carried out while the product was being sold on a limited registration.
- 6.67 The process was the same for a mixed formulation as for a straight formulation, with efficacy testing taking the most time. However, the amount of data required for registration would depend on the similarity of the proposed formulation to existing, or revoked, registrations. As such, Nufarm said that to register a new formulation which was not similar to a product currently on the market may require two seasons of efficacy trials. Nufarm also said that in practice a substantial amount of information on the efficacy of phenoxies can be sourced from *Weed Control Handbook Volume II/Recommendations*¹¹² which is accepted by the PSD.
- 6.68 The registration process from start to finish for Nufarm's straight formulation example above was three years (26 months of data generation and ten months of PSD evaluation). Nufarm submitted that this could have been reduced to 18 months, ie eight months of data generation and ten months of PSD evaluation.
- 6.69 Third parties estimated the cost of entry at the formulated product level, ie a new product, at £350,000,¹¹³ £250,000–£300,000 ([REDACTED]¹¹⁴) and £750,000¹¹⁵ depending on whether the data was protected or not and whether access to third-party protected data was required. Third parties estimated that it would take two to three years to develop before the PSD approval process could begin.¹¹⁶
- 6.70 The evidence we received showed that the time and cost required to obtain approval for a formulated product depended on how different the formulated product was from existing products, and so how much internal data could be used. However, the evidence showed that for a new entrant with no pre-existing internal data the timescales and cost involved are significant.

¹⁰⁹[REDACTED]

¹¹⁰Actual example of a generic mixture of [REDACTED] and [REDACTED] registered in [REDACTED].

¹¹¹Efficacy testing involves field tests over the life cycle of the plant.

¹¹²Fryer, JD and Makepiece, RJ (Eds), 1978.

¹¹³Bayer estimated that it would require a minimum of three years to bring a new product to market and cost in the region of £200,000 to generate the necessary data package (for submission to PSD). These estimates were based on two years of trial data generation, generation of required toxicological and environmental-fate studies etc (or the purchase of similar) plus the time required for a specialist to put together the submission documents.

¹¹⁴[REDACTED] estimated that the cost of registering from scratch a new formulation for (full annex III dossier) is \$400,000 to \$500,000 and would take a year to develop a stable formulation, two years of field testing and a further year with the regulatory authorities before launch.

¹¹⁵Makhteshim Agan (OFT, 25 June 2008) looked at entering the cereals and grassland segment of the herbicides market, but found that it was not profitable. Barriers to entry are seen as start-up costs associated with setting up a production plant and getting the full European support package to develop and register products. Costs of filing a 'full file' to produce phenoxy herbicides could be €1 million.

¹¹⁶UPL also stated that it would cost several hundred thousand pounds and take several years to approve a formulated product.

- 6.71 Accordingly, we found that the registration process is a significant barrier to entry at the formulated product level. Obtaining field data takes time (typically one or two growing seasons) and it entails high sunk costs.¹¹⁷ While there are accelerated routes through the PSD process (which several parties told us was the most rapid in the EU), the process also takes time (perhaps ten months).
- 6.72 The next section examines the possibility of entry into the UK using a formulated product approved for sale in a different EU country.

Cost of mutual recognition of a formulated product approved for use in another member state

- 6.73 The Directive established a system of mutual recognition whereby it is possible for a member state to authorize a formulated product for use in that member state, where the same product has been authorized in another member state, provided that the climate and agricultural practice of the two countries are similar.
- 6.74 Nufarm argued that while this did not remove the need for national Annex III registration, this process could provide for a quicker and cheaper approval process. Nufarm said that it was possible, by prior discussion and agreement with the PSD, to make a partial mutual recognition submission supplemented with data where climate or agricultural practices are different. Nufarm believed that Sarzyna could apply for mutual recognition for one or more of its MCPA registered products in Poland. It argued that this may require additional studies to be carried out but that they would not be costly or time consuming.
- 6.75 The PSD told us that extrapolation from other member state product approvals was possible (ie mutual recognition) but it was not an automatic process and required some degree of evaluation to ensure that the other member state approval was applicable to UK conditions. While product chemistry and toxicology will be the same across all member states (ie conditions in a member state not affecting those intrinsic properties of the formulation), residues, efficacy, ecotoxicology and fate and behaviour may differ between member states due to climate, soils etc (for example, risk to aquatic life must be assessed using UK-specific drainflow modelling). In practice, the PSD told us that mutual recognition was more likely from Northern or Central Europe than Southern Europe (although there may be exceptions such as for glasshouse uses).
- 6.76 Accordingly, we find that technically it is reasonably easy for a producer of a formulated product to enter the UK market if that product falls within the mutual recognition provisions.
- 6.77 Rokita, which has 2,4-D formulated product registered in Poland, however, told us that it was not planning to apply for authorization of its own formulated products in the UK. It stated that although it did not preclude entry into the UK in the near future, it considered the cost of biological trials and authorization as well as the development of a sales network as too high. Before the publication of our provisional findings, Sarzyna, which has MCPA-formulated product registered in Poland, said that it did not intend to enter the UK market in the near future.

¹¹⁷This sunk cost is comparatively high taking into account the gross margin for the Nufarm formulated products in 2008 accounting year: Agritox (straight MCPA) £[redacted] and Compitox Plus (straight MCPP-p £[redacted]). We also note that the new entrant may attract only a small share of the markets, and it is likely that prices may decrease due to the competitive pressure exerted by the new entrant.

- 6.78 For producers of a formulated product falling outside the mutual recognition boundaries, the process of gaining approval is the same, with regard to the creation of a data package, as that for a new formulated product, with the proviso that it may require less time and cost as some of the data may already have been created for other approval processes.

Transport costs

- 6.79 The preferred format for transporting 2,4-D, MCPA and MCPP-p is technical acid. However, formulated product is transported worldwide and while all respondents agreed that the cost should be higher on a price per litre basis than technical acid due to the lower loading, evidence showed the cost to be under 5 per cent.¹¹⁸ The key issue for entry is therefore whether the formulated product is approved within the UK and the costs of obtaining this approval.

Manufacturing formulated product

- 6.80 Entry could occur through a manufacturer of technical acid producing formulated product either itself or by outsourcing the formulation elements of the business to a chemical company that already possesses these facilities. Nufarm argued that there were a number of such companies that could undertake this process.¹¹⁹
- 6.81 An alternative route would be for a formulator to collaborate with a supplier of technical acids or manufacturing concentrates to supply its own formulated product. Nufarm argued that there were a number of companies which might consider collaborating with an overseas producer.¹²⁰
- 6.82 We found that the actual formulation process was not complex (in the context of agrichemicals production), and that there was enough current capacity for this not to be considered a barrier to entry.

Conclusion on barriers to entry

Technical acid

- 6.83 We found at the technical acid level that access to protected data was the key barrier to entry. Where data protection is in force, the barriers to an entrant are sufficiently high to mean that a potential entrant was more likely to wait until the data protection expires than incur the expenditure otherwise necessary.
- 6.84 In 2,4-D, where data protection has ceased we found evidence of several manufacturers aiming to supply the UK market. While we identified one¹²¹ alternative source of MCPA within the EU, we found no evidence that it was likely to seek actively to enter the UK market. In relation to MCPP-p, we found no evidence of potential entry in the period prior to the end of data protection.

¹¹⁸UAP's transport costs were less than 5 per cent for Damine. CC estimate of Headland 2,4-D transport costs based on Herboxone and polo less than 4 per cent.

¹¹⁹Nufarm gave as examples: Bayer (in Norwich), Exwold, Grosvenor, Safapac (all in the UK), Barclays (Ireland), Stahler, Schirm (Germany) and Kwizda (Austria).

¹²⁰Nufarm gave as examples: (a) Grosvenor, a UK-based toll manufacturer; it previously used to supply formulated product to both Nufarm and AH Marks; (b) existing AH Marks customers, such as Headland Cheminova, UPL, and Scotts which all have the capability to formulate products; and (c) overseas formulators such as Agriphar.

¹²¹We do not consider Dow as a potential entry in this section, since its situation is not expected to change after the merger, and its competitive position will be influenced by Nufarm's agreements. (See Section 9.)

- 6.85 We did not find transport costs or quality concerns to be an entry barrier to imports. In 2,4-D and MCPA, we found that there was sufficient spare capacity either currently in existence or as a result of the ease with which production assets could be switched between the two to satisfy UK demand. For MCPP-p, we found that the limited number of worldwide producers, the relative large use of MCPP-p in the UK compared with the global market and the uncertainty regarding the ease of switching production from MCPA/2,4-D indicated that capacity might be an issue in this market.

Manufacturing concentrate

- 6.86 We found that barriers at the manufacturing concentrate level were the same as at the technical acid and formulated product levels. There was no specific regulatory barrier to the import of manufacturing concentrates, although any manufacturing concentrate must be made with an approved source of technical acid, and must be incorporated into an approved formulated product before it might be used in the UK.

Formulated products

- 6.87 With regard to formulated products, there was a barrier to entry stemming from the need to obtain approval from the PSD before a product may be sold in the UK. This barrier could be low as a result of the mutual recognition process, if the product was already marketed elsewhere in the EU and did not require significant additional testing. It was, however, higher both in terms of cost and time if it was not. We found that the cost of obtaining approval of a new formulated product meant that the likelihood of entering only the UK was low. We concluded therefore that entry could occur in the UK with a new formulated product but found no evidence of likely or potential entry. We considered that entry was most likely to arise as a result of importing of a current EU marketed product.

7. Buyer power

- 7.1 Nufarm argued that it would be constrained after the merger by the negotiating power of its distributors. However, despite there being a small number of large distributors which were an important route to market, the evidence we received was that distributors would not individually have the ability to exercise market power to resist possible anti-competitive conduct by Nufarm, due to limited alternative suppliers and substitute products, the fact that the phenoxy products are essentially 'must have' for distributors and the lack of credible alternative ways to source supply such as sponsoring entry or backward integration. Our analysis is set out in more detail in Appendix F.
- 7.2 However, while regulatory barriers would hinder sponsored entry from distributors, just as they would any other entry, we concluded that entrants might be encouraged by approaches from formulators once the data protection for MCPA and MCPP-p expires in 2011 and 2009, respectively. We considered the role of intermediaries in encouraging entry in more detail in Section 6.

8. Competition between Nufarm and AH Marks before the merger

- 8.1 In this section, we consider the extent to which the parties were competing before the merger. We considered the counterfactual in this case to be that it is likely that AH Marks would have been sold to UPL. However, the extent to which the parties competed before the merger informs our assessment of the competition that might be lost as a result of the merger, since we consider that the counterfactual would be as,

or more, competitive than the pre-merger situation (one difference being that competition at the formulated product would be direct in the counterfactual, as opposed to indirect in the pre-merger situation—see further paragraphs 8.3 to 8.6). In particular, we consider:

- (a) the pre-merger relationship between Nufarm and AH Marks;
- (b) data evidence of pre-merger competition; and
- (c) third-party views.

The pre-merger relationship between Nufarm and AH Marks

8.2 Nufarm told us that before the merger it was competing directly with AH Marks in the production and supply of 2,4-D and MCPA technical acid and manufacturing concentrate. However, Nufarm considered that competition was not direct at the formulated product level of the supply chain nor in the supply of MCPP-p-based products. In this section we consider: (a) the fact that AH Marks did not sell direct to distributors; and (b) the competition in the production and supply of MCPP-p-based products.

AH Marks did not sell direct to distributors

8.3 Nufarm generally sold branded packaged products direct to distributors, whereas AH Marks mainly sold non-branded bulk products to formulators and packagers who then sold on to distributors.¹²²

8.4 However, we concluded that supply-side substitution between bulk and packaged products was relatively straightforward and therefore that bulk and packaged formulated products form part of the same product market (see paragraph 5.73 and Appendix D, paragraphs 93 to 99).

8.5 In addition, distributors and herbicide manufacturers were largely aware that AH Marks supplied distributors through Headland and formulators, such as UPL, and therefore were aware that they were purchasing an AH Marks product. They therefore considered that AH Marks and Nufarm were actively competing.

8.6 In this case, although the direct competition at the formulated product level of the supply chain was between Nufarm, Headland and other formulators such as UPL (which purchased from AH Marks), we found that there was strong indirect competition at this level between Nufarm and AH Marks, as well as direct competition upstream.¹²³

Competition in the production and supply of MCPP-p-based products

8.7 Prior to the merger, AH Marks manufactured a full range of phenoxy technical acids, while Nufarm manufactured only 2,4-D and MCPA technical acids and purchased the others (including MCPP-p) from AH Marks. Both parties then used these technical acids to produce a range of manufacturing concentrates and formulated products.

¹²²Despite the fact that there were no long-term supply agreements between Headland and AH Marks, Headland had packaged AH Marks products (including AH Marks and Headland registered products) for sale to distributors for 15 years. AH Marks initially approached Headland. Headland marketed the products supplied by AH Marks independently of AH Marks, with the exception of MCPP-p where, because of the volumes involved (MCPP-p was considered a volume driver), AH Marks worked in partnership with Headland.

¹²³We note that [REDACTED] stated that with respect to MCPP-p formulated products, AH Marks was working in partnership with Headland in competing against Nufarm.

- 8.8 While Nufarm had not been active in manufacturing MCPP-p technical acid, the terms of the toll manufacturing agreement between Nufarm and AH Marks allowed it to compete in the supply of this technical acid and therefore in the manufacture and supply of manufacturing concentrates and formulated products based on it.¹²⁴
- 8.9 In addition, we concluded there was a secondary competitive constraint between AH Marks and Nufarm for the manufacture of MCPP-p technical acid, since Nufarm was the most likely ‘new entrant’ into the production of MCPP-p technical acid. Before 2004, Nufarm had manufactured MCPP-p¹²⁵ and had access to the data required to re-register its technical acid as an approved (Annex II) source in the UK. Nufarm told us that the cost of restarting production of MCPP-p would be approximately US\$[~~3~~] million and would take [~~3~~] months. Even taking this into account, we still concluded that the costs of entry for Nufarm would be lower than for a new entrant which was not active in phenoxy production and did not have the relevant product registrations. We found that once the toll manufacturing agreement expired (end of 2010), Nufarm’s ability to restart production of MCPP-p technical acid, particularly in light of its strategy to become the leading global phenoxy supplier, may be sufficient to give it the negotiating strength to ensure that the toll manufacturing agreement was renegotiated.
- 8.10 However, we found that, following the transfer of the toll manufacturing agreement from BASF to Nufarm, there had been no UK competition at the MCPP-p technical acid level of the supply chain, since neither Nufarm nor AH Marks supplied MCPP-p technical acid to any UK customers. In addition, we did not identify any potential customers in the short term.
- 8.11 We therefore concluded that Nufarm and AH Marks were not competing in the supply of MCPP-p technical acid, although they were competing in the production and supply of MCPP-p manufacturing concentrates and formulated products.¹²⁶

Data evidence of pre-merger competition

- 8.12 We were able to obtain only limited transaction data at the upstream levels of the supply chain (technical acids and manufacturing concentrates) as there were infrequent purchases by few customers. As a result, it was not possible to conduct a robust comparison of pre- and post-merger competition based on transaction data.
- 8.13 We were able to obtain data for the formulated product level of the supply chain. When we considered what that data could show, we took account of the fact that AH Marks’s product was not packaged or branded, while Nufarm’s was. We took the view that, at the formulated product level of the supply chain, it was more revealing to consider the competitive relationship between Nufarm and Headland^{127, 128} as the principal supplier of AH Marks’s products in packaged form.
- 8.14 Nufarm and Headland provided us with information about their customers. From this, we found that of those customers that purchased from Nufarm or Headland, [20–

¹²⁴We considered that the position of Nufarm with respect to AH Marks was different from that of Headland and intermediaries such as UPL, as under the terms of the toll manufacturing agreement neither Nufarm or AH Marks could unilaterally change the terms of the agreement, whereas the prices paid by Headland and UPL for MCPP-p were renegotiated more frequently.

¹²⁵Nufarm had produced its own MCPP-p technical acid until 2004 when Nufarm purchased the phenoxy business of BASF and inherited the toll manufacturing agreement with AH Marks.

¹²⁶We note that in effect Nufarm and AH Marks were internal customers of MCPP-p technical acid to use in the production of manufacturing concentrates and formulated products.

¹²⁷Headland told us that its prices were strongly linked to AH Marks prices.

¹²⁸As Headland only packages AH Marks’ products and therefore this allows a closer comparison to the AH Marks products than considering intermediaries which both formulate and package AH Marks’ products.

30] per cent of customers (by headcount) and [30–40] per cent by value purchased phenoxies from *both* Headland and Nufarm.¹²⁹ This ‘dual sourcing’ may indicate some product differentiation downstream, but in this case, it was a reasonably high level of dual sourcing across a range of commodity and mixed products and therefore we concluded that it indicated that Nufarm’s and AH Marks’s products (via Headland) were competing prior to the merger.

- 8.15 Nufarm said that this level of dual sourcing did not support a finding of direct competition between the parties and it suggested that, for the majority of customers, Nufarm and Headland were not in fact competing closely with each other. However, we concluded that it was incorrect to assume that all customers who could dual source did. Therefore the proportion of customers for whom the parties were considered to be competitors would be higher than the proportion who currently dual source.
- 8.16 However, we found limited evidence of switching. Less than 5 per cent¹³⁰ of the distributors we spoke to had switched between Nufarm and companies supplied by AH Marks in the last five years, although around half of respondents said that they would have considered switching for a 5 per cent price differential (see Appendix G).

Third-party views

- 8.17 The large distributors that we spoke to all considered Nufarm and AH Marks to be competitors. They may have purchased through UPL or Headland, but they considered that Headland was operating as the marketing arm of AH Marks. The formulators also considered AH Marks and Nufarm to have been directly competing.
- 8.18 Some of the smaller distributors were unaware of where the active ingredients ultimately came from, but most considered Nufarm, Headland and UPL (the latter two both purchased from AH Marks) to be competitors. More detail on third-party views is provided in Appendix G.

Conclusion

- 8.19 Overall, the evidence of dual sourcing and the responses from third parties indicated that before the merger Nufarm and AH Marks were competing directly at the technical acid and manufacturing concentrate levels of the supply chain, and indirectly at the formulated product level of the supply chain, for the supply of 2,4-D and MCPA to UK customers. With regard to MCPP-p, we found that Nufarm and AH Marks were not actively competing in the supply of MCPP-p technical acid as neither supplied MCPP-p technical acid to UK customers. However, the structure of the toll manufacturing agreement between Nufarm and AH Marks meant that they were competing directly at the manufacturing concentrate level of the MCPP-p supply chain and indirectly at the formulated product level.

9. Assessment of the competitive effects of the merger

- 9.1 In our Statement of Issues published on 14 October 2008,¹³¹ we identified two theories of harm. First, we said that we would consider whether the reduction in the number of suppliers of each of 2,4-D and MCPA technical acids as a result of the merger might be expected to create or increase market power at the technical acid

¹²⁹This includes all Headland phenoxies and MCPA and 2,4-D products sold by Nufarm. The figures may therefore be higher if we include Nufarm sales of other phenoxies (ie MCPP-p) in 2007/08.

¹³⁰Small distributors only; none of the six largest distributors had switched, although all said that it was quick and easy to switch.

¹³¹www.competition-commission.org.uk/inquiries/ref2008/nufarm/pdf/issues_statement.pdf.

level of the supply chain, which would allow Nufarm to increase price or reduce service or quality at each level of the supply chain. As a result of issues emerging during our investigation, we also considered MCPP-p-based products.

- 9.2 Second, we said that we would consider whether the merger might lead to the fore-closure of any downstream competing business for any phenoxy-based formulated product, thereby creating or increasing market power in any relevant market which may also have implications for competition at other levels of the supply chain, ultimately leading to higher prices, or lower levels of service or innovation in the UK than would otherwise be the case.
- 9.3 We found that there are separate markets for technical acid, manufacturing concentrate and formulated product for each of 2,4-D and MCPA for UK customers, as well as separate markets for MCPP-p manufacturing concentrate and formulated product. Further, formulated products are supplied to two separate markets, namely for use on cereal crops and on grassland (ie there are 11 relevant markets in total).¹³²
- 9.4 In terms of competitive assessment, we found that the main barrier to producing manufacturing concentrates and formulated products was access to technical acids approved for use in the UK. Even if there was some competition downstream in the supply of manufacturing concentrates and/or formulated products, the price was affected by the ability to purchase competitively-priced technical acids and manufacturing concentrates. If the merger enabled Nufarm to increase prices at the technical acid or manufacturing concentrate levels of the supply chain, this increase would be passed through, resulting in an increase in the prices of the relevant manufacturing concentrates and formulated products (straight and mixed). However, in addition, we also considered the effect of barriers to the formulated product markets.

Horizontal effects

2,4-D

Competitors remaining after the merger

- 9.5 Prior to the merger, there were three approved manufacturers of 2,4-D technical acid supplying UK customers (ie with the relevant EU and UK licences): Nufarm, AH Marks and Dow. The merger reduced this to two. Under the counterfactual, there would still be three manufacturers of 2,4-D technical acid: Nufarm, UPL and Dow. The evidence indicated that competition between Nufarm and UPL in the supply of 2,4-D technical acid would have been at least as strong as competition between Nufarm and AH Marks was before the merger.
- 9.6 Following the merger, Nufarm and Dow were the only 2,4-D suppliers serving UK customers. Accordingly, the merger removed one of Nufarm's closest competitors for the supply of 2,4-D technical acid to UK customers.
- 9.7 The remaining competitor, Dow, held the relevant UK and EU licences to supply UK customers. Worldwide, it was the leading supplier of 2,4-D. It supplied several EU customers, [redacted], which formulated products for UK customers [redacted]. Dow told us that it was only active in the supply of bulk rather than packaged products in the UK. It told us that it had no specific plans to increase sales to the UK and did not actively market to UK customers. However, it would treat potential sales to the UK as it would

¹³²For completeness, we did not consider it necessary to conclude on the appropriate market definition for MCPP-p technical acid as there were no identifiable UK customers.

anywhere else in the world: if there was an attractive business opportunity, it would look at sourcing and selling additional volume there.

- 9.8 In addition, Dow stated that it understood that all producers had excess capacity in 2,4-D and therefore it could purchase or produce product for the UK, although as a proportion of its global sales volumes, Europe accounts for around 5 per cent, therefore it did not consider that the UK alone offered significant sales volumes.
- 9.9 However, Dow told us that if the price of an alternative supplier increased, it would expect customers (formulators) to seek quotes and some would come to Dow. We found that two customers had switched from Nufarm to Dow either directly or indirectly¹³³ on the basis of price. Agriphar [redacted] was also willing and able to supply UK customers and therefore UK customers could choose to use [redacted].

Likelihood and timing of entry into 2,4-D

- 9.10 We found that entry into the supply of 2,4-D to UK customers was notably easier than for the other technical acids, as 2,4-D was no longer data protected. Since 2,4-D lost its data protection in October 2007, we found that two potential competitors were taking active steps to enter the UK, indicating that the UK was considered an attractive market to enter, that the loss of data protection increased the likelihood of entry, but also that such entry could take over a year to accomplish. We considered that evidence of companies actively trying to obtain UK formulated product registrations was strong evidence of a willingness and incentive to enter.
- 9.11 In addition, Rokita had a 2,4-D registered source in Poland and could start supplying UK customers relatively quickly and cheaply. Rokita told us that it had no plans to market actively to UK customers, but that it would supply UK customers if approached. We considered that if prices were to increase by significantly more than 5 per cent in the UK, this might encourage UK customers to approach Rokita. However, no customers told us that they had approached Rokita following Nufarm's May 2008 price increases. Therefore, on balance, we did not consider entry by Rokita to be sufficient by itself to replace the loss of competitive constraint provided AH Marks before the merger.
- 9.12 As discussed in paragraphs 6.59 to 6.61, we concluded that a new entrant which already manufactured 2,4-D, but did not have the relevant EU approvals, would have the incentive to enter the UK market if it could capture a 10 per cent market share, based on our estimates of the costs of entry, expected revenue and expected margins. We also considered that there were sufficient 2,4-D formulated product registrations in the UK that were not owned by Nufarm or AH Marks for it to be reasonable to assume that a new entrant could capture such a 10 per cent market share. While Nufarm and AH Marks owned the majority of 2,4-D registrations (18 out of 29 for use in grassland and 12 out of 15 for use in cereals¹³⁴), there were still available routes to market, particularly as we considered that barriers to expanding production of a specific formulated product were relatively low. In addition, we concluded that the barriers to registering new formulated products were lower for formulators which already had some phenoxy registrations, as they might already have some of the data required.

¹³³Bayer switched from Nufarm to [redacted] for the supply of 2,4-D manufacturing concentrate in 2006 and UAP switched from Nufarm to Agriphar ([redacted]) for 2,4-D straight formulated products in 2007.

¹³⁴2,4-D had only limited use in cereals—of Nufarm's and AH Marks's combined sales in 2,4-D, less than 10 per cent is used on cereals.

- 9.13 In the case of 2,4-D, we noted that the fact that two manufacturers were attempting to get their 2,4-D technical acid approved as a registered source in the UK indicated that there were sufficient UK-approved formulated products to make entry financially viable.

Buyer power and Nufarm's ability to raise prices

- 9.14 As discussed in paragraphs 7.1 and 7.2 (and Appendix F), there was no evidence that before the merger, formulators or distributors had significant buyer power with respect to the supply of 2,4-D technical acid. The loss of one of the three major competitors as a result of the merger further reduced any buyer power, although we found that formulators might be able to encourage (if not sponsor) new entry by approaching Rokita.
- 9.15 We received evidence from some third parties which had already experienced price increases on 2,4-D. The AICC told us that price increases on 2,4-D had in fact been higher than for MCPA and MCPP-p, up 40 per cent since the merger. Several third parties¹³⁵ also indicated that prices had increased by 15 to 25 per cent, post-merger. As discussed in Appendix H, these price increases were higher than recent price increases across other non-phenoxy herbicides.
- 9.16 Nufarm said that it usually increased prices only once a year, but in 2008 it increased prices in February and again in May^{136,137} for 2,4-D because of increases in raw material and/or variable overhead costs. We noted that Nufarm had not previously increased prices significantly mid-year to account for cost (see Appendix H). While oil prices increased significantly in the first half of 2008, the evidence showed that the price increase was not fully explained by actual increases in variable costs and may not be fully explained by Nufarm's expectations of cost increases.¹³⁸ As such, we found the evidence on price movements inconclusive.
- 9.17 Third parties indicated that Nufarm might be able to increase prices significantly before customers would switch to alternative products. The AIC, the AICC and the NFU all agreed that price increases would have to be in the region of 50 per cent before customers would consider switching to alternative herbicides. This was supported by several customers,¹³⁹ who also considered that the price increase would have to be significant to induce them to switch, with estimates ranging from 15 to 50 per cent.¹⁴⁰
- 9.18 Some customers were aware of Dow as a potential alternative supplier.¹⁴¹ Few third parties raised significant concerns about the merger, particularly distributors who expected to be able to pass on any price increases to farmers.

Conclusion on competitive effects for 2,4-D

- 9.19 Based on the evidence received, we found that the merger results in the loss of one of the two main constraints on Nufarm in the supply of 2,4-D technical acid and

¹³⁵[§], Agrovista, Frontier, [§], [§], Countrywide and Cropwise.

¹³⁶Distributors were notified of price increases on 1 May, but the effects on transaction data appear in June.

¹³⁷Nufarm's 2,4-D nominal prices were reduced to February 2008 levels in August (notified to distributors on 1 July); however, Nufarm told us that this reduction was due to a change in the way in which it applied rebates and the net prices (after rebate) had not fallen since the June 2008 increase.

¹³⁸In addition, the observed price increase did not take account of the rebates that would be applied at the end of the selling season and therefore might overstate the actual net price increase for 2,4-D.

¹³⁹LW Vass, [§], Hutchinson, and UAP.

¹⁴⁰For MCPA and 2,4-D.

¹⁴¹For third-party comments, see Appendix G.

manufacturing concentrate. However, Nufarm would continue to face competition from Dow, which is already supplying UK customers, [REDACTED]. Further, we concluded that there was a significant likelihood of entry into the supply of 2,4-D technical acid since it had lost data protection. In particular, we were aware of two manufacturers of 2,4-D (Atul and Sharda) which were currently going through the process to enable them to supply UK customers, indicating a clear intent to compete in the UK. In addition, we concluded that Rokita was well placed to enter the UK market, although it had no current plans to compete actively for UK customers.

- 9.20 With regard to routes to market, we concluded that, while Nufarm or AH Marks held the majority of 2,4-D formulated product approvals in the UK, there were sufficient third-party formulated product registrations to encourage 2,4-D technical acid manufacturers to enter the UK market given the relatively low market share required to make entry financially viable. The entry attempts of identified potential entrants indicated that they were not deterred from entry by the high proportion of formulated product registrations owned by Nufarm/AH Marks.
- 9.21 Accordingly, we did not find that there was sufficient evidence to find an SLC in the four relevant markets we identified for 2,4-D (ie technical acid, manufacturing concentrate and formulated products for use in cereals and grassland).

MCPA

Competitors remaining after the merger

- 9.22 Before the merger, there were two manufacturers of MCPA technical acid supplying UK customers: Nufarm and AH Marks. The merger reduced this to one. In the counterfactual, there would still be two manufacturers of MCPA technical acid: Nufarm and UPL. We concluded that competition between Nufarm and UPL in the supply of MCPA technical acid would be at least as strong as the pre-merger competition between Nufarm and AH Marks had been.
- 9.23 Nufarm told us that Dow could compete in the supply of MCPA products in the UK. Dow was part of the MCPA Task Force and held the relevant EU and UK licences. Nufarm also said that even if Dow did not manufacture its own MCPA technical acid, it could still compete in the supply of MCPA products, due to the supply arrangements it had in place with Nufarm.¹⁴² [REDACTED]
- 9.24 We examined the supply arrangements, under which Nufarm sold MCPA technical acid to Dow. [REDACTED]¹⁴³
- 9.25 [REDACTED]¹⁴⁴
- 9.26 Based on the evidence we received from Dow and the supply arrangements with Nufarm [REDACTED], we found that Dow was at best a weak constraint on Nufarm in the supply of MCPA products. [REDACTED]
- 9.27 Accordingly, after the merger Nufarm was the only manufacturer and supplier of MCPA technical acid to UK customers.

¹⁴²We note that Nufarm told us that the parties actively competed with Dow in the supply of MCPA technical acid, even though Dow purchased it from Nufarm. [REDACTED]

¹⁴³[REDACTED]

¹⁴⁴[REDACTED]

Likelihood of and timing of entry

9.28 The evidence we received showed that barriers to entry into the supply of MCPA technical acid to UK customers were high due to the regulatory requirements. In particular, MCPA would remain data protected until 2011, and we found that potential suppliers had little incentive to start the process of entering the UK market before then.

- *The position of Sarzyna*

9.29 The exception to this could be Sarzyna. As discussed in paragraph 6.20, Sarzyna had a registered source of MCPA in Poland and could start supplying UK customers relatively quickly and cheaply. Before publication of our provisional findings, Sarzyna told us that it had no plans to market actively to UK customers, but that it would supply UK customers if approached. We considered that if prices were to increase by significantly more than 5 per cent in the UK, this might encourage UK customers to approach Sarzyna. However, no customers told us that they had approached Sarzyna following the May 2008 price increases and Sarzyna did not inform us that it had been approached by UK customers.

9.30 As a result of discussions with Sarzyna concerning Nufarm's proposed remedies package, Nufarm submitted that it was no longer reasonable for the CC to reach an SLC finding with respect to MCPA technical acid, manufacturing concentrate and formulated product. In particular, Nufarm told us that the reason Sarzyna had not been approached by UK customers was that it had only just obtained registration; that Sarzyna had actively marketed to UK customers (by placing an advertisement in *Agrow* magazine); that Sarzyna had indicated a wish to enter the UK market as part of a wider EU strategy; and that distributors had no concerns about sourcing individual products from Sarzyna.

9.31 However, we noted that Sarzyna obtained its registrations in August 2008 and, despite the start of the spring selling season, it still had not been approached by UK customers. In addition, Sarzyna told us that it had not engaged in a UK advertising campaign and that the advertisement placed in *Agrow* magazine was a generic one for the whole of the EU. Sarzyna told us that while the UK might be an attractive market, prior to the approach from Nufarm with respect to remedies, it had had no plans to invest in a UK formulated product (ie to gain an Annex III approval from the PSD).

9.32 While we accept that distributors appear willing to stock single products from non-UK firms, provided the correct registrations are obtained, we concluded that, on balance, possible entry by Sarzyna would not have provided a sufficient competitive constraint on Nufarm (absent a suitable remedy), to replace the competitive constraint provided by AH Marks before the merger.

9.33 With respect to the constraint placed on Nufarm by Sarzyna, Nufarm also put it to us that our conclusions were inconsistent with those in our decision in *Greif/Blagden*.¹⁴⁵ In that case, a potential competitor which could supply the UK, but had no active plans to enter the UK market, was considered a sufficient competitive constraint on the merging parties and resulted in a finding that there was no SLC. However, we considered that it was not possible to make a direct comparison between the cases given the importance of regulatory barriers to entry in the markets for MCPA-based

¹⁴⁵ *Greif Inc and Blagden Packaging group: a report on the acquisition by Greif Inc of the steel drum and closures business of the Blagden Packaging Group*, 17 August 2007.

products. Specifically, Sarzyna was not able to supply UK customers immediately. It would be necessary for Sarzyna to develop its own Annex III formulated products for the UK or to persuade existing UK formulators to switch to Sarzyna technical acid, which requires PSD approval. This is unlike the Greif/Blagden case where there were no equivalent barriers to entry into the UK market.

- 9.34 In addition, the regulatory requirements in herbicides also mean that it is not possible to make accurate cost comparisons between Nufarm and Sarzyna for the supply of MCPA technical acid and formulated products to UK customers, which was possible in Greif/Blagden. Finally, we noted that in Greif/Blagden the potential entrant had an existing relationship with UK distributors through sales of a different product.
- 9.35 We therefore conclude that, on balance, the evidence indicates that Sarzyna did not exert sufficient competitive constraint on Nufarm to replace the loss of competition from AH Marks, before the merger.

- *Other possible entrants*

- 9.36 We did not consider it likely that there would be any other entry into the supply of MCPA technical acid to UK customers prior to the removal of data protection in May 2011. Once data protection was lost we concluded that entry would be more likely. We noted that for 2,4-D, while there was evidence of suppliers trying to enter the UK market after data protection was lost, no actual entry had occurred yet.

- *Timing of entry*

- 9.37 We found with respect to 2,4-D that entry would take at least one year once it lost its data protection. We concluded that this would apply equally to MCPA, in particular given the seasonality of purchases and the time frames involved in obtaining the necessary approvals. Therefore a new source was unlikely to compete actively in the supply of MCPA technical acid to UK customers until May 2012 at the earliest.
- 9.38 Nufarm did not consider entry into the supply of MCPA technical acid in the UK to be likely until data protection expired. We concluded that at that point the costs of entry into the UK for a company already manufacturing MCPA technical acid would be relatively low and that an MCPA manufacturer would have the incentive to enter the UK market provided it was able to capture, say, 10 per cent of the market.
- 9.39 Nufarm told us that entry would occur more quickly with respect to MCPA than it had 2,4-D, as the UK market for MCPA was larger than for 2,4-D. However, we concluded that suppliers were unlikely to enter the UK alone (given the relatively small market size), but rather enter as part of wider plan, either across Europe or globally. Third parties commented that the UK was a good place to enter first as the PSD was efficient and once UK approval had been achieved this would facilitate entry elsewhere. Since globally the market for MCPA is smaller than that for 2,4-D, we did not expect entry to happen more quickly in the supply of MCPA than in 2,4-D.

- *Availability of formulated product registrations*

- 9.40 While Nufarm and AH Marks (as with 2,4-D) owned the majority of the MCPA formulated product registrations in the UK, there were more owned by third parties than for 2,4-D. (Nufarm and AH Marks together held 31 out of 55 approvals for use on grassland and 32 out of 49 for use on cereals.) We therefore concluded that there were sufficient MCPA formulated product registrations in the UK that were not owned by Nufarm or AH Marks for it to be reasonable to assume that a new entrant could

capture a 10 per cent market share and therefore that entry would be financially viable.

Buyer power and Nufarm's ability to raise prices

- 9.41 We found that prior to the merger, formulators or distributors did not have significant buyer power and any ability to negotiate came from the ability to switch between Nufarm and AH Marks (ie Headland, UPL etc) products, which is lost as a result of the merger (see Appendix F). We found that formulators might be able to encourage entry by Sarzyna.
- 9.42 We therefore found that post-merger there was only one supplier of MCPA technical acid to UK customers, and we concluded that Nufarm could increase prices to UK customers. Following the merger, formulators had one source of MCPA technical acid from which to manufacture formulated products, and we concluded that they would have to pay any increased prices, resulting in increased prices at the manufacturing concentrate and formulated product levels of the supply chain.
- 9.43 We received some evidence of actual price increases post-merger (see Appendix H). Several third parties¹⁴⁶ told us that since the merger, MCPA product prices had increased by 15 to 20 per cent, compared with lower price increases across some other products. For example, UAP told us that prices on average had increased by 3 to 5 per cent between 2007 and 2008.
- 9.44 Transaction data provided by Nufarm indicated that historically it increased MCPA prices¹⁴⁷ once a year, around February. In addition to the February 2008 price increase, Nufarm increased prices again post-merger (May 2008^{148,149}). Nufarm transaction data showed that net prices (including transaction-specific rebates¹⁵⁰) increased by approximately 30 per cent between March 2008, when the merger completed, and September 2008 (the latest date for which transaction data was available), which did not appear to be fully explained by changes in raw material and/or variable overhead costs (see Appendix H). Nufarm told us that between the scheduled price increase in February 2008 and May 2008, oil prices rose sharply, and it therefore had to increase prices.¹⁵¹ The price increase was, according to Nufarm, based on the expectation that the oil price trend would continue; however, these cost increases did not materialize.
- 9.45 Again, while we considered that the oil price increase in early 2008 was exceptional, we concluded that the observed price increases might have exceeded what would have been expected even with a very pessimistic forecast for future oil prices. However, as we did not have information on Nufarm's expectations of cost increases in May 2008, it was not possible to quantify the size of the price increases not accounted for by expected cost increases. In addition, the observed price increases did not take account of the rebates that would be applied at the end of the selling season and therefore might overstate the actual net price increase for MCPA. We therefore found the evidence on price movements to be inconclusive.

¹⁴⁶Agrovista, UAP, Frontier, [X], [X], Countrywide and Cropwise.

¹⁴⁷Based on average revenue per transaction data.

¹⁴⁸Distributors were notified of price increases on 1 May, but the effects on transaction data appear in June.

¹⁴⁹Nufarm's MCPA nominal prices were reduced to February 2008 levels in August (notified to distributors on 1 July); however, Nufarm told us that this reduction was due to a change in the way in which it applied rebates, and the net prices (after rebate) had not fallen since the June 2008 increase.

¹⁵⁰Although as discussed in Appendix H retrospective rebates have not been finalized yet.

¹⁵¹Nufarm also told us that the revocation of the straight MCPP-p product registration and the forward sale of this product in May 2008 provided a 'natural point' for Nufarm to discuss price changes with customers across the all range of products.

- 9.46 Evidence from third parties indicated that Nufarm might be able to increase prices significantly before customers would switch to alternative products. The AIC, the AICC and the NFU all agreed that price increases would have to be in the region of 50 per cent before customers would consider switching to alternative herbicides. This was supported by several customers,¹⁵² who also considered that the price increase would have to be significant to induce them to switch, with estimates ranging from 15 to 50 per cent.¹⁵³
- 9.47 Third-party comments agreed that Nufarm and AH Marks were the only suppliers of MCPA that they could source from and that as a result of the merger Nufarm had or would be able to increase prices.¹⁵⁴

Conclusion on competitive effects for MCPA

- 9.48 Based on the evidence received, we found that after the merger, Nufarm was the only supplier of MCPA technical acid to UK customers. We concluded that Sarzyna could supply UK customers, but had no intention of actively competing for UK customers (absent a suitable remedy). Therefore, we found that possible entry by Sarzyna would not be sufficient to replace the loss of competitive constraint provided by AH Marks before the merger. Further, we found future entry to be unlikely before at least 12 months after MCPA loses its data protection in May 2011.
- 9.49 With regard to routes to market, we concluded that, while Nufarm or AH Marks held the majority of MCPA formulated product approvals in the UK, there were sufficient third-party formulated product registrations to encourage MCPA technical acid manufacturers to enter the UK market, given the relatively low market share required to make entry financially viable, once data protection expired.
- 9.50 We therefore concluded that Nufarm might be expected to be able to increase prices at each level of the supply chain until at least one year after the loss of data protection in May 2011.

MCPP-p

Competitors remaining after the merger

- 9.51 Prior to the merger, there was one manufacturer of MCPP-p technical acid (AH Marks) but, given the structure of the toll manufacturing agreement, we found that both AH Marks and Nufarm were capable of competing in the supply of MCPP-p technical acid, and we considered that Nufarm was the closest potential competitor in the manufacture of MCPP-p technical acid.
- 9.52 Nufarm and AH Marks were, however, actively competing only in the production and supply of MCPP-p-based manufacturing concentrates and formulated products in the UK, as neither supplied any UK customers with MCPP-p technical acid. That said, we noted that access to competitively priced MCPP-p technical acid was one of the main barriers to entry at the manufacturing concentrate and formulated product levels of the supply chain.
- 9.53 In the counterfactual, we considered that UPL would continue the toll manufacturing agreement with Nufarm for the supply of MCPP-p technical acid. As such, there

¹⁵²LW Vass, [§], Hutchinson and UAP.

¹⁵³For MCPA and 2,4-D.

¹⁵⁴For third-party comments on switching and substitution, see Appendix D.

would still be two sources of technical acid and therefore two companies actively competing in the supply of MCPP-p manufacturing concentrate and formulated products (ie UPL and Nufarm): the merger removed this competition.

- 9.54 [X] UPL could have terminated the toll manufacturing agreement with Nufarm and, if it did so, would therefore have been the only source of MCPP-p technical acid. We expected this to reduce competition at the manufacturing concentrate and formulated product levels of the supply chain, as Nufarm would be dependent on UPL for MCPP-p technical acid, through supply agreements rather than a toll manufacturing agreement. However, UPL would still have been constrained by the threat of Nufarm recommencing the manufacture of MCPP-p technical acid, which may have increased its incentive to renegotiate the toll manufacturing agreement. Therefore the impact of the merger relative to the counterfactual [X] would be a loss of this potential second source of technical acid, which would have enabled competition at the manufacturing concentrate and formulated product levels of the supply chain. Post-merger, Nufarm was the only manufacturer and supplier of MCPP-p manufacturing concentrate to UK customers.

Likelihood and timing of entry

- 9.55 As discussed in Section 6, evidence indicated that barriers to entry in the supply of MCPP-p manufacturing concentrate to UK customers were high due to the regulatory requirements. In particular, MCPP-p remained data protected until June 2009. We found that this meant that potential suppliers had little incentive to start the process of entering the UK market before then.
- 9.56 Nufarm told us of several potential entrants into the supply of MCPP-p technical acid or manufacturing concentrate, or both, to UK customers that it expected to enter shortly after MCPP-p lost its data protection, in particular NutriChem, Flag and Simonis. Despite considerable efforts on our part, NutriChem did not respond to our enquiries; and Simonis told us that it had no plans to enter the UK market. Further, no third party mentioned any of these suppliers.
- 9.57 Nufarm told us that Sarzyna was also a likely new entrant in the production and supply of MCPP-p technical acid or manufacturing concentrate or both to UK customers. [X] During discussions of Nufarm's proposed remedies package, Sarzyna told us that it was planning to start the Five Batch Analysis for MCPP-p with the aim of gaining Annex II approval. Once the source was registered, Sarzyna said that it would consider which global markets to enter and it expected that it would be likely to develop a formulated product for UK approval. Sarzyna considered that the earliest it could enter the UK market would be autumn 2010. We noted that there was no guarantee that Sarzyna's first Five Batch Analysis would be successful, and therefore entry could therefore be delayed beyond this date.
- 9.58 As a result of Sarzyna's views provided to us in the course of discussing possible remedies, Nufarm considered that it was no longer reasonable for the CC to reach an SLC finding with respect to MCPP-p manufacturing concentrate and formulated product. However, we noted again that the timescales involved in Sarzyna's entry into the supply of MCPP-p products to UK customers are relatively long and are not guaranteed, especially if the first Five Batch Analysis is not successful.
- 9.59 Again Nufarm also put it to us that our conclusions were inconsistent with those in our decision in Greif/Blagden. However, as discussed in paragraph 9.33, we consider that it is not possible to make a direct comparison between the cases. In addition, with respect to MCPP-p, Sarzyna does not currently have Annex II approval, making

it even more difficult to make the accurate cost comparison between Nufarm and Sarzyna that were possible in Greif/Blagden.

- 9.60 Given that Sarzyna was at an early stage in the process and the relatively long time frames involved, we concluded that entry by Sarzyna would not be sufficiently timely or likely to replace the lost constraint on Nufarm from AH Marks.
- 9.61 As discussed with respect to MCPA and 2,4-D, we concluded that once a product lost data protection, entry became significantly more likely. However, we note that outside the UK, MCPP-p has a relatively small market and therefore the incentives for entry may be smaller than with respect to MCPA and 2,4-D.
- 9.62 In addition, as we were not aware of any existing manufacturers of MCPP-p technical acid, we concluded that the costs of entering the UK market would be higher than for 2,4-D and MCPA, where there were already manufacturers who would need only the relevant approvals, as a new entrant would also need to establish production facilities. We therefore concluded that the payback period for entry into the UK supply of MCPP-p technical acid would be notably longer than for 2,4-D and MCPA and therefore the incentives for entry into MCPP-p are lower.

Buyer power and Nufarm's ability to raise prices

- 9.63 As discussed in paragraphs 7.1 and 7.2, there was no evidence that prior to the merger, formulators or distributors had significant buyer power and any ability to negotiate came from the ability to switch between Nufarm and AH Marks's products (sold through Headland, UPL etc), which was lost post-merger.
- 9.64 We therefore found that after the merger there was only one supplier of MCPP-p manufacturing concentrate to UK customers and therefore we expected that Nufarm could increase prices to UK customers. Evidence from third parties indicated that they might be able to increase prices significantly, with third parties commenting that the price increases necessary to induce switching range from 25 to 50 per cent.¹⁵⁵
- 9.65 Following the merger, formulators had one source of MCPP-p manufacturing concentrate from which to manufacture formulated products, and therefore we expected that they would have to pay any increased prices, resulting in increased prices at the formulated product levels of the supply chain as well.
- 9.66 It appeared that Nufarm had increased the price of MCPP-p products following the merger. The AICC told us that MCPP-p prices had increased by 35 per cent post-merger and an intermediary put to us that prices had gone up by 30 per cent. As discussed above and in Appendix H, this price increase seemed to be higher than recent price increases on non-phenoxy herbicides. Transaction data was provided by Nufarm for the period January 2005 to May 2008. In May 2008, Nufarm increased the price of Compitox Plus (MCPP-p straight herbicide) by around 9 per cent. However, there was evidence that around half of this price increase was a result of an increase in raw material/variable overhead costs. Again it was not clear to what extent Nufarm's expectations regarding 2008 cost increases accounted for the observed price increases. In addition, due to the revocation of the registration for straight MCPP-p in May 2008, Nufarm forward sold MCPP-p to distributors and therefore

¹⁵⁵AICC, AIC, NFU, Hutchinson.

brought forward its autumn price increase to May.^{156,157} Therefore, we found the evidence of price rises inconclusive.

- 9.67 Third parties said that Nufarm and AH Marks were the only available suppliers of MCPP-p and that as a result Nufarm would be able to increase prices.¹⁵⁸ However, again few third parties raised significant concerns about the merger—in particular, the majority of distributors were not concerned as MCPP-p was a relatively small part of their business and they would be able to pass on any price increases to farmers.

Conclusion on competitive effects for MCPP-p

- 9.68 Based on the evidence received to date, we found that post-merger Nufarm was the only supplier of MCPP-p manufacturing concentrate to UK customers, and we expect the loss of competition between AH Marks and Nufarm to enable Nufarm to increase prices at the manufacturing concentrate and formulated product levels of the supply chain.
- 9.69 Unlike 2,4-D and MCPA, we found limited evidence that third parties were interested in entering, or preparing to enter, this market with the exception of Sarzyna, although we noted that the timescales for Sarzyna to enter the UK are relatively long and entry is not guaranteed. While we considered that entry would be easier once MCPP-p loses data protection in June 2009, we concluded that this would not be as rapid as it would be for the other technical acids.

Vertical effects

- 9.70 If we consider that the merger gives Nufarm market power with respect to 2,4-D and MCPA technical acids and/or MCPP-p manufacturing concentrate, we would expect Nufarm to be able to take advantage of this market power to extract the maximum profit available at lower levels of the supply chain. We have not considered in detail the ways in which Nufarm may choose to do this, but note that it may manifest itself through partial or full foreclosure of downstream suppliers of alternative phenoxy herbicides which purchase their active inputs from Nufarm. However, we considered that under the counterfactual, UPL might have similar incentives (although it would still face a constraint from Nufarm) and therefore we do not think the merger raises specific vertical concerns separate from the horizontal issues discussed above.

Coordinated effects

- 9.71 We considered that there are several industry characteristics that are conducive to coordination, including: the homogenous upstream product; multi-market contacts; the large number of supply agreements and toll manufacturing agreements; and high regulatory barriers to entry. However, there is no evidence that the removal of AH Marks as a competitor in the phenoxy sector significantly increases the risk of coordination between Nufarm and other companies active in the agrichemical sector (in particular, Dow).

¹⁵⁶Nufarm usually changes Compitox Plus prices in February and September (ie before the peak selling seasons—spring and autumn).

¹⁵⁷Straight MCPP-p has now regained registration for use on cereals.

¹⁵⁸For third-party comments on switching and substitution, see Appendix D.

10. Conclusions

- 10.1 On the basis of the evidence and analysis set out above and in the appendices, we reached the following conclusions.
- 10.2 For 2,4-D technical acid, we found insufficient evidence to find that the merger may be expected to result in an SLC. This applied equally to the 2,4-D downstream markets.
- 10.3 For MCPA technical acid, we found that the merger may be expected to result in an SLC. This in turn may be expected to result in an SLC in the downstream markets for manufacturing concentrate and formulated products for grassland and cereals. We found that the SLC will last at least until one year following the loss of MCPA data protection in May 2011.
- 10.4 For MCPP-p, we found that the merger may be expected to result in an SLC in the supply of MCPP-p manufacturing concentrate, which in turn may be expected to result in an SLC in the downstream market for MCPP-p formulated products for grassland and cereals.
- 10.5 MCPP-p data protection will be lost in June 2009, which would be expected to facilitate entry. However, we concluded that the likelihood of entry was lower than for 2,4-D and MCPA given the higher costs of entry and the smaller global market. We found limited evidence of likely entry and therefore concluded that the duration of the SLC may be longer than for MCPA. We expect that any SLC will last for at least 18 months after the removal of data protection, and possibly longer, given the limited size of the worldwide market relatively to 2,4-D and MCPA and therefore the lower incentives for entry.

11. Remedies

- 11.1 At the outset, we note that while the registrations for straight MCPP-p herbicides for use in cereals and grassland had been revoked, the PSD has re-registered straight MCPP-p for use on cereals. While we note that Nufarm has not applied for re-registration for straight MCPP-p for grassland, Nufarm previously held such registrations and could easily reapply in the short term for their use. Further, MCPP-p is still registered for use on grassland and cereals in mixed formulations. We therefore believe that any remedy must address both cereal and grassland usage for MCPP-p.
- 11.2 Having concluded in paragraphs 10.3 and 10.4 that an SLC may be expected to result from the merger, we considered possible remedies, namely:¹⁵⁹
 - (a) whether action should be taken by the CC for the purpose of remedying, mitigating or preventing the SLC concerned or any adverse effect which has resulted or may be expected to result from the SLC;
 - (b) whether the CC should recommend the taking of action by others (eg regulators, government departments) for the purpose of remedying, mitigating or preventing the SLC concerned or any adverse effect which has or may be expected to result from it; and
 - (c) in either case, if action should be taken, what action should be taken and what is to be remedied, mitigated or prevented.

¹⁵⁹Section 35(3) of the Act.

- 11.3 In considering these questions, the CC is required particularly to have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the SLC and any adverse effects resulting from it.¹⁶⁰
- 11.4 In general, the CC prefers one-off remedies that restore or maintain the structure of the market (so called ‘structural remedies’) to remedies designed to regulate or constrain the behaviour of the parties (ie ‘behavioural remedies’). This is because structural remedies are likely to deal with the SLC or consequent adverse effects at source by restoring rivalry in a horizontal merger and do not normally require ongoing monitoring and enforcement. In contrast, behavioural remedies may be difficult to specify or easy to circumvent; they may lead to market distortions; and they are likely to require significant monitoring and enforcement.
- 11.5 This section first sets out the broad categories of possible remedy options and examines the effectiveness of possible remedies within these categories in this case. Second, it considers the proportionality (including costs) of those remedies found to be effective. Finally, it considers whether there are any relevant customer benefits resulting from the merger that need be taken into consideration.

Possible remedies and their effectiveness

Categories of remedies options

- 11.6 We considered in detail two solutions to remedying the SLC that we found:
- (a) a structural remedy, in particular partial or total divestiture of the AH Marks business;¹⁶¹ and
 - (b) a package of measures proposed by Nufarm to facilitate entry (i) by providing access for competitors to the necessary licences and (ii) by entering into toll manufacturing agreements and/or supply agreements with competitors to enable them to supply UK customers.¹⁶²
- 11.7 We did not consider behavioural remedies that control outcomes (such as price controls) in any detail. The CC generally does not favour this type of remedy, which can be complex to implement and monitor and may also create significant market distortions. Equally, Nufarm did not propose this type of remedy.
- 11.8 In our Remedies Notice, we also asked whether making Annex II data for MCPA and MCPP-p more generally available as a way of facilitating entry could be an effective remedy. Nufarm argued that such an access to data remedy was not realistic, since a task force owns the MCPA data of which Dow is a member, along with Nufarm. That task force has incurred significant costs in relation to the data, and Dow would seek to recover those costs in making the data more broadly available.
- 11.9 Third parties in general thought that access to both Annex II and Annex III data for both MCPA and MCPP-p was required to enable entry, so that making Annex II data more generally available would not be effective on its own.
- 11.10 We noted the potential difficulties in relation to MCPA, and also took the view that Nufarm’s remedy proposals, if effective, would provide access to the necessary

¹⁶⁰Section 35(4) of the Act.

¹⁶¹Notice of possible remedies, paragraph 7.

¹⁶²Some aspects of the package of remedies proposed by Nufarm provided access to regulatory licences (similar to intellectual property); and so we considered the package to be a hybrid of structural and behavioural remedies.

levels of data to facilitate new entry by the suppliers concerned, and accordingly that requiring access to Annex II data was not needed. We therefore did not examine a requirement to provide access to Annex II data access in more detail.

Structural remedies

- 11.11 A successful divestiture will effectively address at source the loss of rivalry resulting from the merger by changing or restoring the competitive structure of the market. The CC normally seeks to identify the smallest viable, stand-alone business that can compete successfully on an ongoing basis that includes all the operations relevant to the area of competitive overlap.¹⁶³
- 11.12 CC guidance identifies three broad categories of risk that may reduce the effectiveness of divestiture remedies:¹⁶⁴
- (a) *Composition risks*. These are risks that the scope of the divestiture package may be too constrained or not appropriately configured to attract a suitable purchaser or may not allow a purchaser to operate as an effective competitor in the market.
 - (b) *Purchaser risks*. These are risks that a suitable purchaser is not available or that the merger parties will dispose to a weak or otherwise inappropriate purchaser. An appropriate purchaser should be independent of the main parties, have the resources, expertise and incentive to maintain and develop the divested operation as a viable and active competitor, and would not be likely to create competition concerns in its own right as a result of the divestiture.¹⁶⁵
 - (c) *Asset risks*. These are risks that the competitive capability of a divestiture package will deteriorate before completion of divestiture, for example through loss of customers or key members of staff.
- 11.13 The responses we received to our Notice of possible remedies focused primarily on:
- (a) the scope of the divestiture package necessary for a divestiture remedy to be effective—in particular, parties commented on whether full or partial divestiture of the AH Marks business would be effective; and
 - (b) whether a suitable purchaser would be available to purchase any divestiture package.

Views of Nufarm and third parties—scope of divestiture package

- 11.14 Nufarm said that, as it did not produce MCPP-p before the merger (instead purchasing it from AH Marks under a toll manufacturing agreement), pre-merger competition was on the basis of a toll manufacturing agreement from a single manufacturing plant. Nufarm argued that divestment of the manufacturing facility at Wyke would not recreate the pre-merger competitive position in relation to MCPP-p. This is because a divestiture would not, in itself, replicate the toll manufacturing agreement between Nufarm and AH Marks. Therefore even full divestiture would not be a comprehensive or effective remedy in relation to MCPP-p.

¹⁶³ *Merger Remedies: Competition Commission Guidelines*, CC8, [paragraph 3.7](#).

¹⁶⁴ CC8, [paragraph 3.3](#).

¹⁶⁵ CC8, [paragraph 3.15](#).

- 11.15 Nufarm also argued that partial divestment was not practical due to the integrated nature of the Wyke site. Both MCPA and MCPP-p are produced in combined plants with other phenoxies. Accordingly, partial divestment would require Nufarm to build a separate plant at Wyke. It estimated that such construction would be expensive, costing approximately £[redacted] million.¹⁶⁶ In addition, it argued that the new plant (and existing facilities) would be likely to incur higher unit costs than those currently incurred at Wyke as production efficiencies would be lost if the new plant produced just MCPA and MCPP-p (rather than the broader range that the Wyke site currently produces).
- 11.16 Bayer said¹⁶⁷ that it did not believe that partial divestiture was a viable business model. Dow told us that it did ‘not believe that the establishment of a viable and active MCPA and MCPP-p competitor would necessarily require divestiture of the entire assets and operations of AH Marks’. However, it also stated that ‘a partial divestiture of MCPA and MCPP-p assets and operations would not be practicable operationally’. All other third parties¹⁶⁸ which commented specifically on partial divestment also said that they did not believe that divestiture of part of the operations of AH Marks would be a viable remedy because of the integrated nature of the Wyke site.

Views of Nufarm and third parties—ability to find a suitable purchaser

- 11.17 Nufarm argued that there was significant uncertainty surrounding potential purchasers, due to:
- (a) the legal position of the Wyke site;
 - (b) [redacted];¹⁶⁹
 - (c) the potential environmental liability associated with purchasing a chemicals site; and
 - (d) the current economic climate, which has constrained the availability of finance.
- 11.18 Nufarm argued that assignment and sub-letting restrictions contained in the Sale and Leaseback agreement and other impediments ([redacted])¹⁷⁰ meant that substantial uncertainty existed as to whether a purchaser would be able to acquire the relevant land or assets.
- 11.19 However, one third party told us that while the legal position of the Wyke site might be a complication, it was not so serious that it would prevent sale of the business. [redacted] told us that it had reviewed the lease [redacted] and did not consider it an obstacle to acquiring AH Marks.
- 11.20 Nufarm also said that any potential purchaser would need to be able to provide the necessary assurances to those whose consent was required (ie [redacted]) to enable any sale to occur. In addition, Nufarm argued that the need to provide approximately £[redacted] million of working capital on acquisition meant that any purchaser would require significant funds over and above the purchase price, to acquire and operate AH Marks. It believed that this might prove difficult in the current economic climate.

¹⁶⁶Nufarm said that AH Marks construction of plant 37 for MCPP-p manufacture in 1999 cost in the region of £[redacted]–£[redacted] million.

¹⁶⁷Bayer did not believe that there would be a buyer for ‘such a small, low profit part of the business’.

¹⁶⁸[redacted] and [redacted].

¹⁶⁹[redacted]

¹⁷⁰[redacted]

11.21 Third parties had mixed views, in particular due to current economic conditions. However, some companies expressed interest in acquisition of AH Marks ([REDACTED]).

CC views on divestiture

11.22 We considered whether full divestiture of AH Marks would be an effective remedy. In relation to MCPA, this remedy would produce the competitive situation of the counterfactual and so would be effective. In relation to MCPP-p, we conclude that an appropriate toll manufacturing agreement linked to the sale of the business would address Nufarm's submission regarding MCPP-p, so that competition in the supply of MCPP-p manufacturing concentrate and formulated product would be restored.

11.23 We accepted the submissions made by Nufarm and third parties, as set out in paragraphs 11.15 and 11.16, that a viable partial divestiture package could not be identified, due to the complications with the Sale and Leaseback Agreement and the legal charges over the land on which the Wyke site is situated; and the integrated nature of the Wyke site.

11.24 We disagreed with Nufarm's view that full divestiture of the AH Marks business was not a viable option. We considered Nufarm's submissions as to the uncertainty of finding a suitable purchaser for the AH Marks business. We concluded that, while the legal restrictions on the property might complicate a sale of the business, or affect the price for which it can be sold, they would not prevent it. This conclusion was supported by evidence of third parties. We acknowledge the change in economic circumstances since the merger and Nufarm's points regarding the lease, [REDACTED] and the possibility of environmental liabilities that are associated with the purchase of any chemicals site are relevant to any sale.

11.25 However, we considered that Nufarm's submissions with regard to the viability of divestiture as a remedial option affected the price at which it might sell the AH Marks business rather than the feasibility or effectiveness of divestiture to remedy the SLC we identified. We were satisfied that a suitable purchaser could be found. We were not aware of any reason to think that asset deterioration was likely to prevent an effective sale in this case.

11.26 We considered an appropriate timescale for divestiture. In general, the longer a divestiture takes to complete, the greater the risk that the divestiture package, by accident or design, will degrade, affecting the effectiveness of the remedy. CC guidance¹⁷¹ states that we will not normally expect the initial divestiture period to be greater than six months. Where an SLC is expected to last for a limited duration, we thought that it may be appropriate to have a shorter period than six months, so that the remedy can address the SLC as quickly as possible. One party [REDACTED] told us that it would be able to complete the transaction in two months, as a result of its knowledge of AH Marks through the initial sales process.

11.27 We recognize that any potential purchaser may need to raise external funds for the transaction and that this may, in the current financial market conditions, lead to longer time frames than might otherwise be required, and that a period shorter than six months may therefore not be feasible. Even if [REDACTED] could complete the transaction quickly, the two months it suggested appeared optimistic.

11.28 We concluded that divestiture of the AH Marks business as a whole was feasible and would effectively address the SLC we identified because it would address the loss of

¹⁷¹CC8, paragraph 3.24.

competition which has resulted from the merger by restoring the competitive structure of the market. We conclude that divestiture would be achievable within [X] months.

Nufarm's remedy proposals

- 11.29 In our provisional findings, we concluded that the regulatory framework, which requires regulatory approval both for the technical acid source and for the formulated product, was the main barrier to entry to the product markets in the UK.¹⁷² These approvals are obtained on the basis of confidential data that can be expensive to generate. In the case of the formulated products, the approvals may be transferred. Accordingly, the package of remedies proposed by Nufarm has some aspects that are similar to an intellectual property remedy.¹⁷³
- 11.30 Nufarm proposed two remedy options for each of MCPA and MCPP-p, which are set out below. It was willing to offer all of these options, if required. In addition, it would publish a summary of the remedies in relevant agricultural publications to alert the industry to new sources of products.
- 11.31 Nufarm's proposals were based on both enhanced regulatory access, in particular assisting rivals to obtain regulatory approval for formulated products (ie Annex III approvals), and supply of the necessary technical acid or manufacturing concentrate to make those formulated products. They amount to a hybrid remedy since they contain elements of intellectual property transfer, and of behavioural remedies, in that they also require Nufarm to make and honour long-term agreements.

CC's approach to Nufarm's proposals

- 11.32 Nufarm argued that measures to enable competition and facilitate entry (such as its proposals) need not lead to actual entry in order to be effective. It cited CC decisions where it said that potential entry rather than actual entry was given as the reason for not finding an SLC.¹⁷⁴ Conversely, the OFT stated that reducing entry barriers may not be sufficient and actual new entry would be required to restore the competition lost as a result of the merger.
- 11.33 We were not persuaded that the previous CC decisions cited by Nufarm were relevant to the current situation. Only four of these decisions were made under the Enterprise Act. In one of these (Svitzer/Wijsmuller/Adsteam Marine), the CC found an SLC resulting from a loss of direct competition that was not mitigated by the threat of potential competition, and which required a divestment remedy. Accordingly, the decision in that case does not support the point made by Nufarm. The decision in Greif/Blagden was made on significantly different facts to those present in the current merger situation (see paragraphs 9.33 and 9.34). The other two cases related to merger clearances, in which potential competition had been a factor contributing to the finding that there was no SLC. This is different from the current case, in which we have identified a loss of direct competition between AH Marks and Nufarm. The

¹⁷²See paragraphs 6.85 and 6.86 of the [provisional findings report](#).

¹⁷³CC8, [paragraph 2.7](#).

¹⁷⁴*P&O Princess Cruises plc and Royal Caribbean Cruises Ltd: a report on the proposed merger*, June 2002; *Cargill Incorporated and Cerestar SA: a report on the merger*, May 2002; *Linpac Group Limited and McKechnie Paxton Holdings Limited: a report on the merger*, May 2002; *VNU Entertainment Media UK Limited and Book Data Limited: a report on the acquisition by VNU Entertainment Media UK Limited of Book Data Limited*, March 2003; *HJ Heinz and HP Foods: a report on the completed acquisition of the HP Foods companies by HJ Heinz Company and HJ Heinz Company Ltd*, March 2006; *Svitzer/Wijsmuller A/S and Adsteam Marine Ltd: a report on the proposed acquisition by Svitzer/Wijsmuller A/S of Adsteam Marine Ltd*, February 2007; *Greif Inc and Blagden Packaging group: a report on the acquisition by Greif Inc of the steel drum and closures business of the Blagden Packaging Group*, August 2007; and *FirstGroup plc and the Greater Western Passenger Rail franchise: a report on the acquisition by FirstGroup plc of the Greater Western Passenger Rail franchise*, March 2006.

nature of the barriers to entry in this market (see paragraph 9.33), and the delays to entry caused by the need to obtain the necessary regulatory approvals, mean that the threat of entry is not likely to constrain an incumbent's pricing decisions. We have therefore not found potential competition to be sufficient to mitigate the loss of rivalry between Nufarm and AH Marks.

11.34 In considering the appropriate remedial action, we must be satisfied that the remedies will be effective in addressing the SLC and will do so within a limited timescale. Given this and the barriers to entry that we have identified (that inevitably produce delay), we decided that, for us to be satisfied that Nufarm's proposed remedy package would be an effective remedy to the SLC, we had to be satisfied that actual entry would occur in a sufficiently short timescale.

11.35 The following sections describe and assess Nufarm's proposals in relation to MCPA and MCPP-p.

MCPA

11.36 Nufarm put forward two proposals in relation to MCPA:

- (a) MCPA Option 1—designed to increase the competitive threat from Dow; and
- (b) MCPA Option 2—designed to facilitate the entry of Sarzyna into the UK market for MCPA.

- *MCPA Option 1—Increasing the competitive threat from Dow*

11.37 Nufarm told us that this remedy option is designed to increase the competitive threat from Dow by improving the terms on which Dow purchased MCPA technical acid from Nufarm and transferring a product registration from Nufarm to Dow to enable Dow to offer its own straight MCPA formulated product to customers. In this regard, Nufarm proposed to:

- (a) extend the MCPA [redacted] supply agreement under which Dow receives MCPA technical acid from Nufarm for use in [redacted] formulations until [redacted];¹⁷⁵
- (b) amend the pricing terms of the [redacted] supply agreement so that Dow would be competitive in the supply of MCPA technical acid to UK customers;¹⁷⁶
- (c) remove the [redacted] in the [redacted] supply agreement to ensure that Dow [redacted] source MCPA technical acid from elsewhere without penalty;
- (d) remove the [redacted] which is currently contained in the [redacted] supply agreement; and
- (e) transfer a Nufarm MCPA 500 registration to Dow which would incorporate an irrevocable Letter of Access to Nufarm Annex III data.¹⁷⁷ Nufarm offered to modify the MCPA 500 registration to be transferred to Dow so that Sarzyna could act as an alternative source of technical acid. The MCPA 500 registration is the same strength and composition as the registration held by Nufarm for the Agritox product and AH Marks for the Agroxone product.¹⁷⁸

¹⁷⁵This would provide continuity of supply for [redacted] months following the end of data protection in May 2011.

¹⁷⁶Nufarm proposes price based on [redacted].

¹⁷⁷Dow has its own Annex II data and a Letter of Access for Nufarm 5 batch analysis.

¹⁷⁸Together these products had sales in 2007 of [redacted] per cent of Nufarm's and AH Marks's combined MCPA sales.

11.38 Nufarm told us that this remedy would encourage Dow to be a strong competitor in the supply of MCPA technical acid, manufacturing concentrate and formulated products to UK customers. It told us that commercial negotiations with Dow could be completed and an agreement signed by [REDACTED], and that the registration could be transferred to Dow by [REDACTED] (see Appendix I) with Nufarm publishing a summary of the remedy in the UK agricultural press by [REDACTED].

11.39 We discussed the feasibility of this remedy option with Dow.¹⁷⁹ Dow told us that [REDACTED].

11.40 Distributors indicated that they did not see any issues with respect to stocking a single Dow straight MCPA product that Dow would have as a result of this remedy (as opposed to a broader portfolio of phenoxy products). Distributors told us that they would consider sourcing one additional product from a current supplier whether or not it fitted in with the rest of that supplier's range.

- *MCPA Option 2—facilitating entry by Sarzyna*

11.41 Nufarm told us that this remedy option was designed to facilitate the entry of Sarzyna into the UK markets for MCPA. Sarzyna already had its own Annex II data and was therefore identified as being the potential entrant which would be able to enter the UK markets most rapidly, while MCPA remained under data protection. Under this remedy option, Nufarm proposed that it would create a new MCPA 500 straight formulated product with Sarzyna as the technical acid source, using Sarzyna's Annex II data. It would then transfer the registration to Sarzyna. Nufarm would obtain the necessary approval from the PSD. Nufarm submitted that this option would give Sarzyna the ability and incentive to supply UK customers at all levels of the supply chain.

11.42 Nufarm argued that this remedy would enable Sarzyna to fulfil the regulatory requirements to supply (a) UK distributors with an MCPA straight formulated product; and (b) UK intermediaries with technical acid or manufacturing concentrate to produce straight or mixed MCPA formulated products. This would give UK intermediaries the option to switch to Sarzyna for product formulations not owned by Nufarm/AH Marks, at a low 'up-front' cost to Sarzyna or the intermediary. Nufarm told us that the timescale for implementation of the remedy would be around 13 weeks from the date of submission to the PSD.¹⁸⁰ This entails concluding commercial negotiations and signing an agreement with Sarzyna [REDACTED], submitting an application for a new MCPA 500 formulated product in [REDACTED], resulting in registration of the new product by the PSD by [REDACTED], with the PSD transferring the registration by [REDACTED] (see Appendix I).

11.43 Once all these steps had been taken, Nufarm would publish a summary of this remedy option in the UK agricultural press in early [REDACTED]. We noted that a significant proportion of the time required to put this remedy option in place is taken up by the PSD evaluation of the necessary applications.

11.44 Sarzyna told us that it had held initial discussions with Nufarm in relation to this remedy, as well as regarding the possibility of Sarzyna supplying Dow as part of MCPA Option 1 above. It said that it was interested in selling the transferred formulated product in the UK, rather than technical acid. It believed that it was commer-

¹⁷⁹We are aware of the possible constraints that Dow may be facing that might, in general, affect its ability to compete. (*Financial Times*, 28 January 2009, p17).

¹⁸⁰This comprised nine weeks for evaluating Sarzyna Annex II data under mutual recognition, and a further four to six weeks to register the transfer of the formulated product. This time frame was confirmed by the PSD on the basis that the application was based on another member state providing acceptable evidence of an Annex II data package evaluation (although all the changes could be carried out within the nine-week timescale).

cially more attractive for it to supply formulated product as there would be little price differential between it and Nufarm at the technical acid level. This would not preclude it from supplying Dow or other UK customers with technical acid, if approached, though it had not previously supplied Dow in any market or any UK customers.

11.45 Responses received from distributors indicated that they did not see any issues with respect to stocking the single Sarzyna MCPA product that it would have as a result of this remedy (as opposed to a broader portfolio), provided that Sarzyna had the necessary registrations, credit checks and a reliable and efficient distribution network.

- *CC assessment of MCPA Options 1 and 2*

11.46 At the outset, we note that Nufarm must ensure that its proposed agreements with Dow and others comply with applicable EC and UK competition law. Nufarm assured us that the agreements would comply with applicable law. As noted in paragraph 11.109, we are drawing certain competition concerns that this inquiry has raised to the attention of the relevant authorities.

11.47 With regard to MCPA Option 1, we concluded in paragraph 9.26 that Dow currently provides only a weak constraint on Nufarm. To determine whether MCPA Option 1 would be effective, we considered whether it would change Dow's incentives to the extent that Dow would become a sufficiently strong constraint on Nufarm to replace the constraint lost as a result of the merger.

11.48 We conclude that the proposed supply agreement and transfer of the registration of a formulated product increases, in principle, Dow's incentives to supply MCPA in the UK. Dow told us that the proposal was potentially attractive. However, Dow traditionally has not supplied MCPA in the UK and [REDACTED] (paragraph 9.25). Further, it would be linked to and dependent on Nufarm for its raw material, the technical acid, at least in the short term. This creates some uncertainty over how vigorously Dow will compete in the market, even with increased incentives.

11.49 We concluded therefore that although MCPA Option 1 could, depending on its terms,¹⁸¹ contribute to remedying the SLC by increasing Dow's incentives to supply MCPA in the UK, it would not be sufficient on its own to remedy that SLC.

11.50 With regard to Nufarm's offer to register Sarzyna as an alternative source of technical acid for the formulated product it is offering to transfer to Dow, we considered that this could increase Dow's ability to compete independently of Nufarm in the UK market. However, Dow could easily switch technical acid source to Sarzyna within a relatively short time in any event, since Sarzyna already has Annex II approval. We considered that supplying technical acid to Dow would be less attractive to Sarzyna than competing with its own formulated product, and noted that registering Sarzyna as an alternative source of technical acid would add to the time frame for implementation of this remedy option. As a result, we do not consider that the inclusion of this element in MCPA Option 1 adds significantly to its effectiveness.

11.51 With regard to MCPA Option 2, we favoured this proposal as it could create an independent rival in the UK markets for MCPA (as opposed to one dependent on Nufarm for its technical acid). It would, in principle, enable Sarzyna to enter the UK market and compete at all levels of the supply chain. Sarzyna told us that the proposed

¹⁸¹Nufarm assured us that the agreement would comply with applicable law, which would include competition law, and we would expect Nufarm to provide us with details of the steps it has taken, and any changes it has made to the agreement to ensure that this is the case.

agreement was attractive and could be finalized quickly, and indicated its willingness to enter the UK market provided that this happened. In addition, the remedy might be implemented rapidly following agreement between Sarzyna and Nufarm as it involves no new data generation or analysis and no non-regulatory third party. As noted in paragraph 11.42, Nufarm indicated that the registration could be completed and transferred by late [✂].

- 11.52 However, we also noted that there were some risks associated with this proposal. Sarzyna has never traded in the UK and is unknown to the majority of intermediaries and distributors, which leads to some uncertainty over how rapidly it could become an effective competitor to Nufarm. This compares to the counterfactual situation in which Nufarm and UPL were both well-established competitors.
- 11.53 We conclude that MCPA Options 1 and 2 increase the ability and incentive for Dow and Sarzyna respectively to compete in the UK market at the various levels of the supply chain. We considered Sarzyna more likely than Dow to compete vigorously, due to its independence from, and lack of pre-existing and continuing relationship with, Nufarm.
- 11.54 We noted that there is a risk with either option that entry will not in fact occur and also a risk, if entry does occur, that the entrant will not be a sufficiently vigorous competitor to restore the competition that has been lost as a result of the merger. We thought that these risks particularly applied to entry by Dow in relation to MCPA Option 1, but also to a lesser extent to Sarzyna in relation to MCPA Option 2.
- 11.55 Given the risks associated with either option, we concluded that both options were needed for us to have sufficient confidence that the market structure arising from Nufarm's proposal would be sufficiently competitive for these measures to effectively remedy the SLC we found. The combination of these measures would result in an increased competitive constraint from Dow combined with an independent new entrant, Sarzyna. In our judgement, the increase in competitive pressure created by these two measures would be sufficient to remedy the loss in competition resulting from the merger.
- 11.56 Accordingly, we concluded that the combination of MCPA Option 1 (omitting Sarzyna as the second technical acid source of the new formulation) and MCPA Option 2 was sufficient to remedy effectively the SLC identified in the MCPA markets.
- 11.57 We also concluded that publication of a summary of these remedies in the relevant agricultural publications in a sufficiently prominent manner should remove any information gap in the market regarding potential sources of MCPA formulated products.

MCPA-P

- 11.58 Nufarm made two proposals in relation to MCPA-p:
- (a) MCPA-p Option 1, designed to ensure that there is competition in the supply of formulated products to distributors; and
 - (b) MCPA-p Option 2, designed to facilitate the entry of Sarzyna into the UK market for MCPA-p after the expiry of Annex II data protection.

- *MCPP-P Option 1—competition in supply of formulated product to distributors*

- 11.59 Nufarm proposed entering into toll manufacturing agreements, covering manufacturing concentrate and formulated products, with AH Marks’s pre-merger MCPP-p agricultural customers: Headland and UPL. These toll manufacturing agreements would cover all MCPP-p straight and mixture products (and their developments) sold to agricultural customers in the UK. They would be non-exclusive, allowing Headland and UPL to switch if an alternative source of manufacturing concentrate or formulated products becomes available. [REDACTED] Nufarm proposed that such agreements could be for up to [REDACTED] years [REDACTED].
- 11.60 Nufarm proposed that prices would be set under the proposed toll manufacturing agreement using an agreed formula based on costs [REDACTED]. The proposed cost categories and calculation methods are set out in Appendix J. [REDACTED]
- 11.61 In addition, Nufarm said that it would be willing to continue to allow Headland and UPL to rely upon those MCPP-p formulated product registrations for use on cereal crops and grassland (or their developments) which they currently used, for as long as Nufarm continued to maintain them for its own use. Nufarm did not, however, commit to maintaining those MCPP-p registrations, should it exit the market.
- 11.62 Nufarm also offered to undertake to create and transfer a straight MCPP-p formulated product registration (‘Headland Charge’) to Headland in addition to entering into a toll manufacturing agreement with Headland and UPL.
- 11.63 Headland told us, in the context of both MCPA and MCPP-p, that it was in principle in favour of the proposed remedy. [REDACTED] It said that it would need access to Annex II and Annex III data through a Letter of Access to allow it to dual source to benefit from any new entrant to market.
- 11.64 Headland holds four MCPP-p mixed registrations. In relation to MCPP-p straight product, Headland told us that it would be able to sell ‘Headland Charge’ provided that the registration was transferred to it and that it was supplied to it under a suitable toll manufacturing agreement.
- 11.65 Headland argued that any agreement should include access to any novel developments of the products (new formulations, new recommendations for use, improved safety profiles etc) for the duration of the agreement, so that one party does not find itself sidelined or placed in an uncompetitive position by technological advances made by the other. [REDACTED]
- 11.66 UPL said that any toll manufacturing agreement should be on a ‘cost plus’ basis and be of at least five years’ duration, as it believed that this was the time it would take to obtain technical acid from a new source not registered in the UK. Headland submitted that any agreement should last for [REDACTED] years.
- 11.67 Nufarm told us that all elements of this remedy option could be in place by [REDACTED]. It anticipated that the toll manufacturing agreements could be signed with Headland and UPL by [REDACTED]. It would submit the application for registration of a new straight product for Headland at around the same time and anticipated that the PSD would registering the new product in Headland’s name, [REDACTED] (see Appendix I).

- *MCPP-P Option 2—facilitating entry by Sarzyna*

- 11.68 In addition to MCPP-p Option 1, Nufarm offered to create and transfer a formulated product registration to Sarzyna, using a Five Batch Analysis that would be carried out

by Sarzyna and Nufarm's source of Annex III data. Nufarm said that this would, as in MCPA Option 2, complete the regulatory requirements allowing an alternative producer to supply distributors with a straight MCPP-p formulated product and allowing an alternative acid producer to supply intermediaries with MCPP-p technical acid or manufacturing concentrate for use in straight or mixed MCPP-p formulated products.

11.69 Nufarm estimated that the PSD would take approximately 18 weeks to evaluate the alternative acid source's Five Batch Analysis. It would take a further four to six weeks to register the transfer of the registration, making a total of approximately 22 to 24 weeks, after which Sarzyna could supply UK customers with MCPP-p technical acid, manufacturing concentrate and formulated product.

11.70 Sarzyna told us that the UK market was attractive and that, as with MCPA, it was interested principally in selling formulated product in the UK, although this did not preclude it from supplying UK customers with technical acid. Sarzyna anticipated producing a Five Batch Analysis for its EU registration in the second quarter of 2009 and told us that this would have occurred irrespective of Nufarm's approach. Sarzyna told us that this would mean that theoretically it could have a product for sale in the UK by autumn 2010.

11.71 Responses received from distributors indicated that they did not see any issues in respect of stocking a single Sarzyna MCPP-p product (as opposed to a portfolio of products).

- *CC assessment of MCPP-p Options 1 and 2*

11.72 The loss of competition we identified in the MCPP-p market differs from that in MCPA. This is because in the counterfactual there was only one manufacturer of MCPP-p technical acid (ie AH Marks/UPL), but Nufarm and UPL also competed in the supply of MCPP-p technical acid and the production of MCPP-p-based manufacturing concentrates and formulated products on the basis of a toll manufacturing agreement. We concluded that it was reasonable to accept a toll manufacturing agreement on the terms set out in paragraphs 11.59 to 11.61 as a potential remedy, as this would replace the type of competition that had been lost through the merger.

11.73 We concluded that the following measures would constitute an effective remedy to the SLC we identified in relation to MCPP-p. Nufarm should:

(a) enter into toll manufacturing agreements with Headland and UPL on the terms set out in paragraphs 11.59 to 11.61;

(b) create and transfer the registration of the 'Headland Charge' product to Headland;

(c) provide Headland and UPL with access to AH Marks's Go-Low technology; and

(d) allow Headland and UPL to rely on those MCPP-p formulated product registrations (or their developments) which they currently use for as long as Nufarm continues to maintain, for its own use, MCPP-p registrations for use on cereal crops and grassland.

11.74 This would provide for competition at the manufacturing concentrate and formulated product levels and would mirror the counterfactual position of at least two suppliers to distributors of formulated products, both straight and mixed. It would provide Headland and UPL with sufficient certainty about the terms on which they would have access to formulated product and manufacturing concentrate, and confidence that

their formulations would be maintained and would not be sidelined by technological developments. We did not consider that the transfer of a straight MCPP-p registration need be extended to UPL, as UPL has only a small amount of MCPP-p sales and so the extension would not have an appreciable effect on competition.

- 11.75 We considered the appropriate length of any toll manufacturing agreement. A longer agreement of, for example, five years would give Headland and UPL more certainty about the terms on which they would obtain the inputs, which could increase the competitive pressure that they could bring to bear on Nufarm. However, we concluded that Headland and UPL would have less need for a toll manufacturing agreement if new entry took place after the loss of data protection. We also thought that longer agreements might have the unintended consequence of deterring new entry. We found in paragraph 10.5 that the SLC in the MCPP-p markets for manufacturing concentrate and formulated products would last until at least 18 months after the loss of data protection, from which point new entry may be more likely. This view has been supported by evidence from Sarzyna. In the light of these considerations, we concluded that proposed toll manufacturing agreements with Headland and UPL should last for at least three years, but need not be longer than this.
- 11.76 Since we did not identify an SLC in the supply of MCPP-p technical acid, it is not necessary to find a remedy which ensures that there is a second manufacturer capable of supplying MCPP-p technical acid, particularly as the only use for MCPP-p technical acid is in the production of manufacturing concentrates and formulated products. The SLC at these downstream levels of the supply chain will be addressed by Option 1 above.
- 11.77 We did not consider it necessary to accept Nufarm's proposed MCPP-p Option 2 (ie transferring an MCPP-p registration to Sarzyna), as it would make no significant difference to Sarzyna's ability to enter the UK markets, nor would it significantly affect the likely timing of Sarzyna's entry. This contrasts with the position in MCPA, where the creation and transfer of a registration could significantly accelerate Sarzyna's entry.

Conclusion on effectiveness of possible remedies

- 11.78 We consider that both full divestment of the AH Marks business or the combined MCPA Options 1 (without Sarzyna as a registered alternative technical acid source) and 2 with MCPP-p Option 1 would be effective to remedy the SLC we identified.

Proportionality

Nufarm and OFT views

- 11.79 Nufarm submitted that the markets were small, and in particular divestment would be a disproportionate remedy since the proportion of AH Marks sales achieved in the UK was only a small share of its total business. It said that we should consider export sales of the parties in our assessment of proportionality. Nufarm referred to [section 41](#) of the Act which requires the CC to have regard to the need to achieve 'as comprehensive a solution as is reasonable and practicable' and said that there is no qualification that the evaluation of reasonableness should be limited to the UK impact of the remedy proposed.
- 11.80 The OFT, however, considered that the key issue was to identify an effective and proportionate remedy, and the proportion of total sales achieved in the UK was not

relevant to the issue of proportionality and therefore to this exercise. Divestment should not be excluded on the basis of limited UK sales.

CC assessment

- 11.81 In general, having assessed the effectiveness of remedy options, the CC considers the proportionality (including the costs) of those remedies that it expects would be effective in addressing the SLC and resulting adverse effects. In order to be reasonable and proportionate, the CC seeks to select the least costly remedy, or package of remedies, that it considers will be effective. If the CC is choosing between two remedies which it considers will be equally effective, it will select the remedy that imposes the least cost or that is least restrictive. The CC seeks to ensure that no remedy is disproportionate in relation to the SLC and its adverse effects.¹⁸² We take into account our discussion of relevant customer benefits in paragraphs 11.90 to 11.99.
- 11.82 We considered, first, the arguments put by Nufarm that we should consider export sales as part of our assessment of proportionality. The fact that parties' activities are carried on in the UK and elsewhere (or that a large proportion of the business is not in the UK) does not affect the CC's obligation to remedy an SLC it finds (and in doing so to seek to achieve as comprehensive a solution as is reasonable and practicable). Equally, the fact that the UK markets are small does not detract from the need to remedy an SLC once the OFT has determined that the market is sufficiently important to justify making a reference. We note that the markets represent an appreciable proportion of AH Marks's UK turnover (£[x] million out of £[x] million in 2007/08: [x] per cent).
- 11.83 We then considered the relative costs and restrictiveness of the two effective approaches to remedying the SLC that we found, namely total divestiture and Nufarm's proposals.
- 11.84 In relation to the costs of full divestiture, we considered that Nufarm undertook the risk of incurring such costs by completing the merger without notifying the OFT, and so did not take them into account. This is in line with our guidance.¹⁸³ We noted that total divestiture would result in Nufarm forgoing any efficiencies that could be expected to arise from the merger, though the scale of any efficiencies is uncertain and has not been quantified.
- 11.85 The measures proposed by Nufarm are likely to involve some additional costs to Nufarm and to third parties. These are associated with concluding the necessary agreements, completing the registration process and monitoring the remedies. However, we thought that these costs were likely to be modest. The supply and toll manufacturing agreements included within Nufarm's proposals are commonly used in the industry and so we expect related monitoring costs to be low. The costs of registering and transferring new formulations impose low costs on third parties.
- 11.86 We did not believe that the difference between the relevant direct costs of divestiture and of Nufarm's proposals was significant enough to recommend one remedy over the other. However, we noted that Nufarm's proposals would enable Nufarm to realize any efficiencies associated with the merger, whereas divestiture would not.
- 11.87 We considered that Nufarm's proposals were more closely aligned with the SLC that we found than a total divestiture, and so we concluded that they are less restrictive

¹⁸² CC8, paragraphs 1.9 to 1.13.

¹⁸³ CC8, paragraph 1.10.

than such divestiture. Nufarm's proposals address the specific markets in which we found an SLC, while full divestiture would necessarily affect activities unconnected to the SLCs (remembering that we concluded that partial divestiture would not be effective).

- 11.88 We expect that the SLCs would have a limited duration, whereas a divestiture remedy would be a permanent measure. In this case, we found that regulatory barriers were the key constraints on competition, which also argued in favour of a set of measures that directly addressed those barriers.
- 11.89 We decided that, while a divestiture of some description is usually the most comprehensive and proportionate remedy, looking at the specific and unusual circumstances of this case and comparing the two effective remedies as a whole, we considered that Nufarm's proposals were more targeted to the specific SLC that we had identified and so preferred them.

Relevant customer benefits

- 11.90 In deciding the question of remedies, the CC may have regard to the effects of any action on any relevant customer benefits in relation to the creation of the relevant merger situation concerned.¹⁸⁴
- 11.91 Relevant customer benefits are defined by the Act¹⁸⁵ as benefits to relevant customers in the form of lower prices, higher quality or greater choice in goods or services in any market in the UK (whether or not in the market or markets in which the SLC has occurred or may occur); or greater innovation in relation to such goods or services. Relevant customers may be customers at any level of the supply chain¹⁸⁶ and are therefore not limited to final consumers. Relevant customer benefits must accrue as a result of the creation of the merger situation and be unlikely to accrue without that situation or the SLC; and they must accrue, or be expected to accrue, within a reasonable period of the creation of the merger situation.¹⁸⁷
- 11.92 As set out in CC guidance,¹⁸⁸ the CC will normally take relevant customer benefits into account once it has decided that an SLC exists, by considering the extent to which alternative remedies may preserve any such benefits. Relevant customer benefits that will be lost due to the implementation of a particular remedy may be considered to be costs of that remedy. The CC may consider modifying a remedy to ensure that a relevant customer benefit is retained, or it may consider changing its remedy selection.
- 11.93 The CC expects merger parties to provide convincing evidence of any relevant customer benefits that they claim result from the merger and to quantify them. Parties are also expected to show that the benefits fall within the definition of a relevant customer benefit which is provided in the Act. For example, the fact that a merger led or would lead to economies of scale in production or distribution will not necessarily constitute a relevant customer benefit, unless it can be shown that any cost savings will be passed on to customers.
- 11.94 Nufarm argued that the merger had brought about significant efficiencies which reduce costs. It said that it would share these cost benefits with customers as several

¹⁸⁴Sections 35(5) and 36(6).

¹⁸⁵Section 30.

¹⁸⁶Section 30(4).

¹⁸⁷Section 30(2).

¹⁸⁸CC8, paragraph 1.15.

of the cost savings are in variable cost categories and these types of cost savings have been passed on before. In addition, it said that customers with 'cost plus' supply agreements would automatically benefit. We note that [REDACTED] in its submission said that it believed that the merger would generate benefits for [REDACTED] and other customers, both in terms of quality and reliability of service, while also reducing costs.

- 11.95 Nufarm told us that cost savings would arise through rationalization and specialization between the Nufarm and AH Marks plants. These cost efficiencies would not have been achieved under the counterfactual, according to Nufarm, as UPL was not active in the production or supply of technical acids before the merger. Nufarm also told us that it had already been able to negotiate better prices for raw materials which resulted in better prices for customers.
- 11.96 Nufarm considered that competition in the supply of phenoxy products would ensure that any cost efficiencies were passed on to customers. However, Nufarm told us that, if we concluded that there was an SLC, it acknowledged that we would see a risk that any cost reductions would not be shared with customers for MCPA and MCPP-p. However, Nufarm believed that this risk would be nullified by its remedies and the benefit would be passed on to its customers. Further, the cost savings would in any event be passed on to the customers in the 2,4-D market as relevant customer benefits.
- 11.97 We noted in paragraphs 9.15 and 9.16 that the evidence indicated that Nufarm had in fact increased its prices of 2,4-D, MCPA and MCPP-p since the merger and therefore there was no evidence that the cost reductions it had already realized had been passed to customers. We note that we were unable to conclude on whether the price increases could be entirely explained by increases in raw material costs. However, we took the view that this evidence cast doubt on Nufarm's claims that the merger would lead to relevant customer benefits within the meaning of the Act.
- 11.98 We did not consider that Nufarm provided convincing evidence of the nature and scale of relevant customer benefits that it claimed would result from the merger. We accept Nufarm's submission that the merger may result in cost efficiencies for Nufarm,¹⁸⁹ and that to the extent that any such efficiencies exist, these would be eliminated if divestiture were required. However, these benefits have not been quantified, and the evidence of price increases to customers since the merger does not support Nufarm's claims of pass-through on a scale that would merit us altering our approach on remedies.
- 11.99 Accordingly, in our assessment of the remedies options we did not have regard to the effects any action we might take on any relevant customer benefits which had arisen as a result of the merger. This means that if Nufarm's alternative remedies proposal is not implemented to our satisfaction, we have concluded that divestiture would be required regardless of any impact that this might have on such alleged benefits.

Conclusion on remedies

- 11.100 We found that full divestiture would be effective and could be achieved in around [REDACTED] months. We did not find that any form of partial divestiture would be effective.
- 11.101 We also found that the following set of measures, which build on the proposals put forward by Nufarm, would be effective:

¹⁸⁹Provisional findings report, paragraph 3.7.

- (a) Nufarm MCPA Option 1 (see paragraph 11.37). This comprises an extension and amendment of Nufarm's current MCPA [§] supply agreement with Dow and the transfer to Dow of an MCPA 500 registration (though we did not consider it necessary to include Sarzyna as a second technical acid source of this new formulation).
- (b) Nufarm MCPA Option 2 (see paragraph 11.41). This involves Nufarm creating a new MCPA 500 straight formulated product, obtaining the necessary regulatory approval and transferring the registration to Sarzyna.
- (c) Nufarm MCPP-p Option 1 (see paragraph 11.59). This requires Nufarm to:
- enter into toll manufacturing agreements with Headland and UPL on the terms set out in paragraphs 11.59 to 11.61;
 - to transfer the registration of an MCPP-p formulated product to Headland;
 - to provide access to Headland and UPL to AH Marks's Go-Low technology; and
 - to give a commitment to allow Headland and UPL to rely upon those MCPP-p formulated product registrations (or their developments) which they currently use for as long as Nufarm maintains those registrations for its own use.

11.102 Based on the timetables submitted by Nufarm (see Appendix I), we concluded that all elements of this package of measures could be put in place by [§], which would be similar to the time that it would probably take to achieve total divestiture.

11.103 We concluded that the two solutions to remedying the SLC do not differ significantly in terms of their relevant direct costs, although we noted that divestiture would not enable Nufarm to achieve any efficiency gains that might result from the merger and that the remedies based on Nufarm's proposals are more closely targeted at the SLC. We concluded that this package of measures, if implemented according to the timetables set out by Nufarm, would represent a comprehensive and proportionate solution and would remedy the SLC in a timely manner.

11.104 While a divestiture of some description is usually the most comprehensive and proportionate remedy, looking at the specific circumstances of this case and comparing the two effective remedies as a whole, we decided that Nufarm's proposals were more targeted to the SLCs that we had identified and so preferred them.

11.105 However, we note that this set of measures depends for its effective implementation on Nufarm reaching agreement with other parties (in particular, Dow, Sarzyna, Headland and UPL) and on Nufarm and other parties, including the PSD, taking the steps necessary to make and transfer product registrations. If Nufarm were unable to reach the necessary agreements or if difficulties arose in relation to the regulatory process, then this would fundamentally compromise the effectiveness of this set of measures. If this were to happen, then the only other effective remedy that we have identified is full divestiture.

11.106 We therefore concluded that it is necessary to retain the option of full divestiture for the duration of the implementation period of the remedies package. Should Nufarm fail to agree satisfactory undertakings or fail to carry out the steps towards implementing these remedies in line with the timetables it has set out and to our satisfaction, then the CC will reserve the right to require full divestment of the AH Marks business.

11.107 To ensure that full divestiture remains a feasible option, we concluded that the provisions of the interim undertakings, currently in place, should also be included in the final undertakings and that a monitoring trustee should remain in place until all elements of the remedies package have been implemented and notice of this fact has been published in the UK agricultural press.

Final considerations

11.108 The markets in relation to which we have identified concerns are small, at least as regards the UK, and the detriment resulting from the SLC for individual farmer customers in the UK may also be small. However, cumulatively, that detriment may be significant, and may persist, giving rise to appreciable harm to consumers.

11.109 During the course of this inquiry we have become concerned by the concentrated nature of the markets for phenoxy acids, and the extent of cooperation that appears to prevail between the various market participants. The task forces for each technical acid require cooperation at one level between otherwise rival companies. We were told repeatedly that toll manufacturing agreements were widespread. It seemed common practice for rival companies to buy from and sell product to each other to satisfy particular contracts. Further, we note that the regulatory framework creates barriers to entry (as it is designed to) and has the potential, with its individual national authorizations, to enhance transparency and facilitate territory sharing among competitors. We are drawing these concerns to the attention of the relevant authorities.