

**Reduce, Reuse, Recycle or Regulate**

**The National Packaging Covenant  
and its application to  
the Fruit and Vegetable Industry in Western Australia**

Trevor James Arbuckle  
BSc (Murd), MBA (Murd)

This thesis is presented for the degree of Doctor of Business Administration of  
Murdoch University

## Declaration

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

.....

## Abstract

The National Packaging Covenant is a self-regulatory agreement between industries in the packaging chain and all spheres of government for the management of packaging waste. The aim of this study is to determine whether the Covenant has the capacity to achieve the environmental objectives of the government in its application to the packaging of fruit and vegetables in Western Australia. This resolves into two major questions, whether self-regulation is the appropriate policy instrument and whether the Covenant can achieve the environmental objectives of the government.

The analysis proceeds as follows. A literature review of self-regulation and its relationship to Public Choice Theory to establish the theoretical foundations of the Covenant. A study of the implementation of voluntary agreements in Europe to determine alternative models and policies. A survey of growers in Western Australia to establish the extent of knowledge of the Covenant and support for its principles. An analysis of the Action Plans of Covenant signatories within the industry and an assessment of the response to the Covenant by Federal, State and Local Governments. Policy recommendations and suggestions for further research conclude the thesis.

The research establishes that the structure of the industry involves a majority of stakeholders (mainly growers) without effective representation, together with small well organised and dominant groups (mainly manufacturers and supermarkets). The Covenant has had little impact, has failed to engage the majority of stakeholders and is characterised by a general lack of commitment by dominant firms within the industry. This analysis supports the public choice explanation and the multi-dimensional approach to the research has produced consistent results.

The major finding of the research is that an effective voluntary agreement requires carefully targeted objectives, negotiations with all stakeholders, incentives for innovation and the certainty of penalties for non-compliance. Application of these key features to the fruit and vegetable industry in Western Australia may provide the model for the industry in Australia and a model for other industries.

## **In Appreciation**

To my wife, Iris, for her patience, encouragement and support on a long journey.

To Dr Frank Harman for believing in the project and for his wise counsel.

To Dr Ray Petridis for his assistance with the final touches.

<b>CHAPTER 1 THE ISSUE</b>	<b>1</b>
1.1 Introduction	1
1.2 The National Packaging Covenant	2
1.3 The First Action Plan	7
1.4 A Cause for Concern	7
1.5 Private or Social Interests	9
1.6 Lessons from Irish Waste Management Regulations	11
1.7 Conclusion	14
<b>CHAPTER 2 BACKGROUND</b>	<b>15</b>
2.1 Introduction	15
2.2 The Role of Packaging	16
2.3 Packaging as an Energy Saver	19
2.4 Preventing Waste through Packaging	20
2.5 Packaging and the Consumer	23
2.6 History of fruit and vegetable packaging	25
2.7 Cardboard Packaging	33
2.8 History of Fruit and Vegetable Marketing	36
2.9 How much packaging?	40
2.10 Conclusion	44
<b>CHAPTER 3 REVIEW OF THE LITERATURE:</b>	<b>45</b>
<b>PUBLIC CHOICE AND THE ROLE OF REGULATION</b>	<b>45</b>
3.1 Introduction	45
3.2 Public Choice	47
3.3 Market Structure	48
3.4 State Failure	50
3.5 Collective Action	51
3.6 Regulation	53
3.7 Regulatory failure	55
3.8 Innovation	57
3.9 Conclusion	61

<b>CHAPTER 4</b>	<b>REGULATION AND SELF-REGULATION</b>	<b>64</b>
4.1	Introduction	64
4.2	The Law and Regulation	65
4.3	Self-Regulation	67
4.4	Instruments	67
4.6	Are Voluntary Agreements Voluntary	70
4.7	Types of Voluntary Approaches	71
4.9	Social Outcomes	75
4.10	Protection of Competition	76
4.11	Juridical considerations	79
4.12	Key considerations	83
4.13	Policy Lessons	84
4.14	Conclusion	85
<b>CHAPTER 5</b>	<b>THE EXPERIENCE OF 'SELF-REGULATION</b>	<b>86</b>
5.1	Introduction	86
5.2	Environmental Agreements in the European Union	87
5.3	The EU Directive.	88
5.4	Action by Member States	90
5.7	Joint approaches	91
5.6	Producer responsibility	93
5.7	Application of Voluntary Agreements	94
5.8	Efficiency of Voluntary Agreements	95
5.9	Availability of Data	99
5.10	Voluntary Agreements in Ireland	100
5.11	Common Principles	102
5.12	Evaluation of the Irish Scheme	103
5.13	The UK and Returnable Transport Packaging	104
5.14	UK Packaging Recovery	107
5.15	Counterpoint	110
5.16	Conclusion	111
<b>CHAPTER 6</b>	<b>SURVEY</b>	<b>113</b>
6.1	Introduction	113

6.2	The Industry Structure	113
6.2.1	Manufacturers	114
6.2.2	Wholesalers	117
6.2.3	Growers	118
6.2.4	Databases	124
6.2.5	Retailers	125
6.3	The Questionnaire	127
6.3.1	Returns	128
6.4	Supermarkets	128
6.5	Conclusion	130
<b>CHAPTER 7 SURVEY RESULTS</b>		<b>132</b>
7.1	Introduction	132
7.2	The Questionnaire	132
7.3	Introductory statement	132
7.4	Part A	132
7.7	Part C	148
7.8	Conclusion	152
<b>CHAPTER 8 ANALYSING THE SURVEY</b>		<b>154</b>
8.1	Introduction	154
8.2	Awareness of the Covenant	154
8.3	Part B Analysis	156
8.4	Conceptual Issues	159
8.5	Conclusion	162
<b>CHAPTER 9 ACTION PLANS</b>		<b>164</b>
9.1	Introduction	164
9.2	The Covenant Council	164
9.3	Schedule 1	165
9.4	Action Plan Guidelines	170
9.5	Summary of Commitments	172
9.6	Additional Commitments	173
9.7	A Comparison of Requirements	175
9.8	Action Plans	176
9.8.1.	Visy	176
9.8.2.	Amcor Fibre Packaging	180
9.8.3.	Huhtamaki	184
9.8.5.	Tacca Plastics Australia Pty Ltd	191
9.8.6.	Q Pak	193
9.8.8.	Woolworths Limited	196

9.8.9	Coles Myer Limited (CML)	200
9.9	Conclusion.	204
<b>CHAPTER 10 IMPLEMENTING THE ACTION PLANS</b>		<b>207</b>
10.1	Introduction	207
10.2	Visy. W.A. State Sales Manager	208
10.3	Amcor Fibre Packaging. Sales Executive	209
10.4	Huhtamaki. Marketing Manager, Moulded Fibre Food Packaging	209
10.5	SCS Plastics Pty Ltd. Representative	211
10.6	Tacca Plastics Australia Pty Ltd	211
10.7	Q Pak Representative from Agents in Western Australia.	211
10.8	Foodland Associated Limited. (FAL) Business Development Manager	212
10.10	Coles Myer.	214
10.11	Conclusion	215
<b>CHAPTER 11 THE GOVERNMENT RESPONSE</b>		<b>217</b>
11.1	Introduction	217
11.2	General responsibilities	218
11.3	Action Plans	219
11.3.1	Publication of the Commonwealth Action Plan	219
11.3.2	Publication of the Government of Western Australia Action Plan	220
11.3.3	Publication of Local Government Action Plans	220
11.4	Government Responsibilities	221
11.5.1	Commonwealth Actions	222
11.5.2	Performance Indicator and Timeline	224
11.5.3	National Environment Protection (Used Packaging Materials) Measure	225
11.6	Government of Western Australia Action Plan to July 2003	225
11.7	Local Government	228
11.7.1	Shires of Capel and Dardanup Action Plan	229
11.7.2	Town of Port Hedland Action Plan	230
11.7.3	Western Australian Local Government Association	232
11.8	Conclusion	235
<b>CHAPTER 12 CONCLUSION</b>		<b>237</b>
12.1	Introduction	237
12.2	A Review of the Methodology of the Study	238
12.2.2	The Experience of Voluntary Agreements	238
12.2.3	Industry Awareness	239
12.2.4	Effect on Signatories	239
12.2.5	Support by Governments	239
12.3	Evaluation Template (Lévêque)	240
12.3.1	Involvement	240



12.3.2	Roles, Rights and Responsibilities	241
12.3.3	Consultation	241
12.3.4	Environmental objectives	242
12.3.5	Transparency	242
12.3.6	Free Riders	242
12.3.7	Non-compliance	243
12.3.8	Summary	244
12.4	Observations from Theory	244
12.4.1	Anti-competitive behaviour	244
12.4.2	Strategic behaviour	244
12.4.3	More firms, less action	245
12.4.4	Exploitation of large by small	245
12.4.5	Availability of sufficient selected incentives	246
12.5	Options	247
12.6	Key considerations	249
12.6.1	Identifying the need	250
12.6.2	Costs and innovation	250
12.6.3	Non-compliance	251
12.6.4	Administration	251
12.7	Recommendations	251
12.8	Further Study	252
	<b>REFERENCES</b>	<b>253</b>
	<b>APPENDIX 1 THE QUESTIONNAIRE</b>	<b>260</b>
	<b>APPENDIX 2 SUMMARY OF RESPONSES TO QUESTIONNAIRE</b>	<b>265</b>
	<b>APPENDIX 3 STATISTICAL TEST RESULTS (SPSS)</b>	<b>274</b>
	<b>APPENDIX 4 ANALYSIS OF RESPONSES</b>	<b>292</b>
	<b>APPENDIX 5 RETURNABLE PLASTIC CRATES, THE CHEP STUDY</b>	<b>300</b>

## List of Tables

TABLE 1 TYPICAL BY PRODUCTS CREATED FROM PROCESSING AND/OR PACKAGING OF FOOD.....	21
TABLE 2 PRINCIPAL FRESH FRUIT AND VEGETABLE COMMODITIES .....	41
TABLE 3 PRINCIPAL FRUIT AND VEGETABLE EXPORTS - OVERSEAS 1998/99.....	43
TABLE 4 ENVIRONMENTAL FOCUS OF ENVIRONMENTAL AGREEMENTS WITHIN EUROPEAN UNION 1997.....	88
TABLE 5 PLACING JOINT APPROACHES.....	93
TABLE 6 DIFFERENCES BETWEEN NEGOTIATED AGREEMENTS IN THE NETHERLANDS AND IN THE EU .....	95
TABLE 7 OVERVIEW OF VAS IN DIFFERENT COUNTRIES OF THE EU .....	98
TABLE 8 PRODUCER RESPONSIBILITY OBLIGATION.....	109
TABLE 9 HAD YOU HEARD OF THE NATIONAL PACKAGING COVENANT?.....	133
TABLE 10 PACKAGING DECISION - GROWER .....	136
TABLE 11 PACKAGING DECISIONS - RETAILER.....	137
TABLE 12 DIFFERENT PACKAGING .....	138
TABLE 13 RESULTS SUMMARY.....	139
TABLE 14 QUESTION B20 TEST OF HOMOGENEITY OF VARIANCES .....	140
TABLE 15 QUESTION B20 ANOVA .....	140
TABLE 16 QUESTION B20 BAR GRAPH.....	141
TABLE 17 QUESTION B21 TEST OF HOMOGENEITY OF VARIANCES .....	141
TABLE 18 QUESTION B21 ANOVA .....	141
TABLE 19 QUESTION B21 BAR GRAPH.....	142
TABLE 20 QUESTION B21 BOX PLOT .....	142
TABLE 21 QUESTION B29 TEST OF HOMOGENEITY OF VARIANCES .....	143
TABLE 22 QUESTION B29 ANOVA .....	143
TABLE 23 QUESTION B29 BAR GRAPH.....	143
TABLE 24 QUESTION B29 BOX PLOT .....	144
TABLE 25 QUESTION B32 TEST OF HOMOGENEITY OF VARIANCES .....	144
TABLE 26 QUESTION B32 ANOVA .....	144
TABLE 27 QUESTION B32 BAR GRAPH.....	145
TABLE 28 RESULTS SUMMARY - SORTED .....	145
TABLE 29 CHART – AVERAGES .....	147
<b>TABLE 30 CHART - SIMPLE AVERAGES .....</b>	<b>147</b>
TABLE 31 ARE YOU A MEMBER OF AN INDUSTRY GROUP OR ASSOCIATION? .....	149
TABLE 32 PRINCIPAL CROPS GROWN.....	150
TABLE 33 PERCENTAGE OF CROP MARKETED BY CONTAINER USED .....	151
TABLE 34 AWARENESS OF NATIONAL PACKAGING COVENANT AND ASSOCIATION MEMBERSHIP ...	155
TABLE 35 AWARENESS MATRIX .....	155
TABLE 36 SURVEY RESPONDENTS SUPPORT THE AIM OF ENVIRONMENTALLY FRIENDLY PACKAGING .....	157
TABLE 37 SURVEY RESPONDENTS SUPPORT INDUSTRY CONSULTATION ON PACKAGING.....	157
TABLE 38 SURVEY RESPONDENTS ARE AWARE OF THE NEED TO REDUCE PACKAGING WASTE.....	157
TABLE 39 SURVEY RESPONDENTS SUPPORT VOLUNTARY CODES.....	157
TABLE 40 SURVEY RESPONDENTS ACCEPT RESPONSIBILITY FOR USING ENVIRONMENTALLY FRIENDLY PACKAGING (PRODUCT STEWARDSHIP).....	158
TABLE 41 IS THERE EVIDENCE THAT THE COVENANT IS A POTENTIAL STIMULUS FOR ANTI- COMPETITIVE BEHAVIOUR?.....	160
TABLE 42 IS THERE EVIDENCE OF STRATEGIC BEHAVIOUR,; OF PARTICIPANTS HIDING THEIR TRUE PREFERENCES IN THE HOPE THAT THIS WILL REDUCE THE BURDEN OF COMPLIANCE (FREE RIDING)? .....	160
TABLE 43 IS IT VALID THAT THE MORE FIRMS THERE ARE, THE LESS LIKELY THE ACTION? .....	160
TABLE 44 IF ONE OR MORE FIRMS IN A GROUP OR SECTOR WILL BENEFIT GREATLY FROM COLLECTIVE ACTION, THEY WILL BE WILLING TO INCUR THE COSTS OF ACHIEVING THAT ACTION (EXPLOITATION OF THE BIG BY THE SMALL) .....	161
TABLE 45 IS THERE THE AVAILABILITY OF SELECTIVE INCENTIVES WHICH ENCOURAGE AND FACILITATE THE DEVELOPMENT OF COLLECTIVE GOALS. ....	161
TABLE 46 DO THE INCENTIVE SIGNALS ENCOURAGE ACTION IN THE PRIVATE AND COLLECTIVE INTEREST?.....	161
TABLE 47 IS DYNAMIC EFFICIENCY LIKELY TO EMERGE - STIMULATE INNOVATION FOR PRODUCTIVITY GAINS? .....	161
TABLE 48 IS STATIC EFFICIENCY LIKELY TO BE ACHIEVED - MAXIMISING NET BENEFITS, MINIMISING NET COSTS FOR EXISTING TECHNOLOGY? .....	162
TABLE 49 A COMPARISON OF THE REQUIREMENTS SHOWN IN SEPARATE PARTS OF THE COVENANT .....	175
TABLE 50 VISY INDUSTRIES PERFORMANCE TARGETS.....	179

TABLE 51 VISY INDUSTRIES COMMITMENTS 2002/3 (PAPER AND PAPER PRODUCTS) .....	179
TABLE 52 AMCOR ACTION PLAN COMMITMENTS (PAPER AND PAPER PRODUCTS) .....	181
TABLE 53 SCS PLASTICS PERFORMANCE OBJECTIVES .....	190
TABLE 54 FAL OBJECTIVES .....	195
TABLE 55 WOOLWORTHS ACTION PLAN COMMITMENTS (FRUIT AND VEGETABLE DIVISION ONLY) ..	198
TABLE 56 PUBLIC ENVIRONMENTAL REPORTS .....	224