

The Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste



A Flexible Packaging Association Report

Prepared for FPA by McEwen Associates



The Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste

A Flexible Packaging Association Report

Prepared for FPA by McEwen Associates



Copyright © 2014 by the Flexible Packaging Association. All rights reserved. No part of this publication may be reproduced in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from the Flexible Packaging Association. Statements of fact or opinion are made on the responsibility of the author alone and do not imply an opinion or endorsement on the part of FPA, its officers or its membership. Address all questions or inquiries to the Flexible Packaging Association, 971 Corporate Boulevard, Suite 403, Linthicum, Maryland 21090, 410-694-0800.

2 TABLE OF CONTENTS

1 Executive Summary.....1

2 Table of Contents.....3

3 Introduction5

4 Literature Review.....5

4.1 Environmental Significance6

4.2 Consumer Behavior.....7

4.2.1 What food is wasted7

4.2.2 Who wastes and why they waste9

4.2.3 How people feel about food waste.....10

4.2.4 Food waste versus food packaging.....12

4.3 Shelf Life Extension13

4.3.1 Modified Atmosphere Packaging (MAP).....13

4.3.2 Vacuum Packaging.....14

4.3.3 Active Packaging14

4.4 Fruits and Vegetables.....15

4.4.1 Modified Atmosphere Packaging (MAP) of fresh fruits and vegetables.....16

4.4.2 Active Packaging of fresh fruits and vegetables17

4.4.3 Shelf-life extension examples from scientific literature review17

4.5 Meat & Poultry.....18

4.5.1 Red Meat18

4.5.2 Poultry19

4.5.3 Fish.....19

4.5.4 Modified Atmosphere Packaging (MAP) of meats.....19

4.5.5 Vacuum Packaging of meats20

4.5.6 Active Packaging of meats20

4.5.7 Shelf-life extension examples from scientific literature review20

5 Conclusion.....30



6	Appendix 1: Literature Review References.....	31
7	Appendix 2: Supply Chain Food Loss.....	37
8	Appendix 3: MSW Figures, EPA.....	38
9	Appendix 4: Estimated total retail and consumer level food losses by commodity, USDA	39
10	Appendix 5: Key Findings from ‘Consumer Attitudes to Food Waste and Food Packaging,’ WRAP	40
	Figure 1: Categories of municipal solid waste.	6
	Figure 2: Latest U.S. estimates of food waste at the retail and consumer levels.....	8
	Figure 3: Weight of avoidable food and drink waste by food group, split by reason for disposal.	9
	Figure 4: Respiration and ripening of fruits and vegetables.....	17
	Figure 5: Effects of Oxygen on the color of red meat.	18
	Table 1: Relative respiration rates of selected commodities	15
	Table 2: Examples of Climacteric and non-climacteric fruits.....	16

