

● Table of Contents

Acknowledgments	vi
Dedication from the Author	vii
Foreword	viii
Preface	ix
Chapter 1: Introduction	1
What Do We Mean by Sample Preparation?	1
Sample Preparation of Natural Materials from Agricultural Sources	2
What Steps Do Laboratories Generally Follow in Analyzing Natural Materials?	4
Chapter 2: Sample Management and Documentation	7
Chain of Custody	8
Sample Identification	8
Compromised Samples	9
Hazardous Samples	9
Archiving Samples	10
Chapter 3: Sample Integrity	11
Contamination	11
Loss of Analyte	12
Investigation 1: Ammoniacal-Nitrogen in Fertilizer	14
Investigation 2: Nitrate Determination in Soil Samples	19
Chapter 4: Sample Reduction	29
Segregation	29
Sample Reduction Techniques	30
Types of Sample Dividers	31
Investigation 3: Analysis of Raisin Bran	33
Investigation 4: Sub-Sampling Heterogeneous Solids	35
Investigation 5: Statistical Model of Sample Reduction	39
Investigation 6: Determination of the Concentration of Vitamin C in the Peel, Pulp, and Juice of an Orange	43
Chapter 5: Grinding and Mixing	49
Why Do We Grind a Sample?	49
Types of Grinders	49
Sieves	51
Quality Considerations in Grinding	53
What Are the Reasons for Mixing a Sample?	54
Types of Mixers	55
Investigation 7: Factors That Affect the Grinding Process	57
Investigation 8: Percent Recovery and Sample Carryover in Grinding ...	61
Investigation 9: Investigating Mixtures	64
Investigation 10: Effective Mixing	67
Appendix A: Standard Deviation	69
How Probability Plays a Role in Sub-Sampling	71