Contents

PART 1: THE WHY OF NO-TILL

INTRODUCTION 3

Who This Book Is For 3

Tilling Was Once the Only Answer 4

Enthusiasm and Skepticism for No-Till 5

Becoming a No-Till Farmer 6

Defining No-Till: What Counts as Tillage Anyway? 6

New Adaptation for Old Methods 8

The Promise of No-Till 8

THE POWER OF THE SOIL 11

Putting a Face on the Soil 13

Soil: Where the Microbe Magic Happens 15

Taking Care of Our Livestock 16

Soil Life Drives the Success of No-Till Systems 16

Soil Testing 19

Healthy Soil Can Lead to Healthier Farmers 20

FARM SIZE 23

Farming as a Career 24

vii

NO-TILL: A GATEWAY METHOD 27

Evolution of Your Farm 28

Small Can Be Beautiful 29

NO-TILL VS. TILLAGE 31

Tillage: The Agricultural Reset Button 31

Tillage: An Ancient Practice We Might Want to Avoid 32

THE DISADVANTAGES OF TILLING 33

Breakdown in the Nutrient Cycle 33

Weeds 34

Hard Work and Time-Consuming 37

Physical, Chemical, and Biological Disadvantages 38

THE ADVANTAGES OF NO-TILL 45

Advantages for the Environment 45

Fungus: The Perennial Roots of the Soil 45

Soil and Water Can Do Their Jobs 46

Increase in Organic Matter 47

Advantages for Growers 47

THE DISADVANTAGES OF NO-TILL 61

Fields Are Slower to Warm in Spring 61

Systems Can Take Some Time to Become Established 61

Some Methods Are Hard to Scale Up 61

Some Pests Can Flourish in High Residue 62

Perennial Weeds 62

PART 2: THE HOW OF NO-TILL

GETTING STARTED: PRINCIPLES, TECHNIQUES, AND TOOLS 67

Start with a Soil Test 68

Clearing the Deck: Getting the Soil Ready 70

Establishing New Fields 76

Sod Bustin', No-Till Style 80

Reduce the Weed Seed Bank First 81

TARPING 91

Occultation 91

Solarization 94

Tarp Timing 100

Decomposition Rates 102

IT'S ALL ABOUT THE MULCHES 107

Non-Decomposing Mulches 109

Applied Organic Mulches 121

MULCH GROWN IN PLACE 137

The Roller/Crimper Method 138

Roller/Crimper Cons 142

Winter-Killed Cover Mulch Crops 151

Planting through a Cover Crop Mulch 157

Which Crops Work Best in the Roller/Crimper System? 157

GETTING STARTED AND CROPPING STRATEGIES 161

Composting in Place 162

Compost as Mulch 163

Ways to Improve Land and Exhaust the Weed Seed Bank 165

CROPS TO FOCUS ON 167

GOING FROM CROP TO CROP 175

Dealing with Residue 177

Planting 178

Flowers in No-Till 180

CASE STUDY: GROWING HEMP 184

APPENDIX 197

NOTES 199

BIBLIOGRAPHY 201

INDEX 203

ABOUT THE AUTHOR 209

ABOUT THE PUBLISHER 210