

## CONTENT

	Page
Preface	ix
List of contributors	xi
1. Nomenclature and definitions	1
Mechanisms of chemotherapeutant activity	3
2. Historical Aspects	6
Early Investigations	6
Development from mid-1930s	8
The assessment of therapeutic and systemic activity	10
The search for new chemotherapeutants	23
3. Structure-activity relationships	34
Organophosphorus compounds	35
Antibiotics	42
Carboxylic acid anilides	54
Heterocyclic compounds	64
Aromatic compounds	79
4. Toxicological considerations	86
Organophosphorus compounds	87
Antibiotics	88
Carboxylic acid anilides	89
Heterocyclic compounds	89
5. Translocation	92
Entry into the free space within the tissues	93
Apoplastic movement	100
Symplastic movement	102
Translocation of systemic fungicides	109
Conclusion	113
6. Effects on physiology of the host and on the host/ pathogen interations	116
Introduction	116
Effects of systemic fungicides on the host	117
Production of fungitoxicants in plants	118
Stomatal closure as a physical barrier to host entry	119
Systemic compounds that alter growth of the host	120
Treatments that block pathogenic processes	126
Future prospects	131
7. Effects on fungal pathogens	
Introduction	132
Effect of individual compounds on the fungus	135
Factors determining activity : mode of action; selectivity and resistance ; metabolic conversion	150
8. Resistance	156
Introduction	156
Occurrence of acquired resistance	157
Origin of resistance	161
Mechanism of resistance	164
Emergence of resistance in the field	170
Avoidance of fungicide resistance	171

9.	Methods of application	175
	Biological Activity and systemicity	175
	Seed treatment	176
	Soil treatment	178
	Leaf and stem treatments	179
	Post-harvest treatments	183
	Timing systemic fungicide treatment	183
10.	Result in practice – I. Cereals	186
	Introduction	186
	Barley and wheat	186
	Rice	204
	Maize	205
10.	Results in practice – II. Glasshouse crops	206
	Introduction	206
	Disease control in the glasshouse	208
	Use of selected systemic fungicides	209
	Methods of application in glasshouses	218
	Resistance	220
	Non-fungicidal effects of benzimidazole compounds	221
	Biological control	222
	Present trends : future needs	223
10.	Results in practice – III. Vegetable crops	225
	Introduction	225
	Seed-borne diseases	225
	Soil-borne diseases	228
	Leaf diseases	232
	Post-harvest diseases	235
10.	Results in practices – IV. Fruit crops	237
	Introduction	237
	Temperature fruit	238
	Sub-tropical fruit	249
	Tropical fruit	252
	Conclusions	254
	References	255
	Index	311