

AGRICULTURAL CHEMICALS

BOOK IV

FUNGICIDES

BY

W. T. THOMSON

1982-83 REVISION

AGRICULTURAL CHEMICALS

BOOK IV

FUNGICIDES

BY

W. T. THOMSON

1982-83 REVISION

THOMSON PUBLICATIONS

P.O. Box 9335

Fresno, Ca. 93791

COPYRIGHT 1982 BY THOMSON PUBLICATIONS

Library of Congress Catalog No. 64-24795

Printed in the United States of America

ISBN - Number 0-913702-14-5

All rights reserved. No part of this book may be reproduced in any form by photostat, micro film or any other means, without written permission from the author.

THIS BOOK FOR REFERENCE ONLY

READ THE LABEL CAREFULLY

INTRODUCTION

This book is designed as a helpful guide to all the agricultural chemicals available and their uses. Farmers, agronomists, pesticide salesmen, pest control operators, greenskeepers, conservationists, county agents, research workers, and many others should find this a handy reference to be used frequently.

In this book the author has attempted to list and describe the most widely used agricultural chemicals marketed in the world today. Many of the compounds listed are not available commercially as they are still in the experimental stages. However, by mentioning them the life and usefulness of this book has been prolonged.

Since research is continuing on most of the chemicals available in the agricultural field, a check with your farm advisor, county agent, pesticide supplier, agricultural college, or other leading authority would be advisable before using as recommended. The facts have been presented as they appeared to the author, but this information is continually changing as knowledge is gained on the usage of these materials.

HOW TO USE THIS MANUAL

The following indicates what is to be found under each heading for the individual chemicals listed. The chemicals are not listed alphabetically but placed in groups of related compounds. All names, both chemical and common, are listed in the indexes appearing in the front of this book.

NAMES: An attempt has been made to list all the usual names by which a chemical is known. Since this manual is designed for use mainly by the non-technical individual, the common and trade names are used primarily. The most popular trade or common name is listed first, while the remaining are placed at random, not according to usage. The official common name, if the chemical has one, is italicized.

Immediately under the names appears the structural formula, if such a formula exists, followed by the written chemical formula. Since there are a number of ways of writing some chemical formulas, usually only one appears for the sake of simplicity.

ORIGIN: The company which has done most of the development work on the compound is listed, followed by the year the compound was patented or put on the market. The chemical company mentioned may or may not have patented the compound, but it has done much of the basic research connected with developing it. On compounds developed outside the United States, the company which is licensed to market the chemical in this country is mentioned. On some of the older chemicals, only the principle basic producers are listed.

Since many companies may formulate the same chemical compound, readers should not be led to believe that the company named is the only producer. The author is by no means trying to endorse certain companies' compounds.

TOXICITY: The LD₅₀ values of the different compounds are listed here. Since they vary considerably with different tests conducted by different personnel, the lowest value found in the literature is stated. The values are listed as the acute oral LD₅₀ of the technical material, usually recorded in milligrams per kilogram of body weight (mg/kg). As most toxicology work is done with white albino rats, the value listed refers to them unless otherwise stated. Other information on toxicity may be mentioned.

FORMULATIONS: This category explains the forms in which a chemical is marketed. They are usually wettable powders (WP), emulsifiable concentrates (EC), oil solutions, granules, dusts, or aerosols. Since these are constantly changing, the reader is advised to check into the different formulations available from his supplier in his particular locality.

PHYTOTOXICITY: Many pesticides, when applied to some plants, show detrimental side effects. The author has endeavored to list as many plants injured by a certain compound as it was possible to find. This changes in many cases due to the advent of new, less phytotoxic formulations. Weather conditions in a certain locality, may also be a factor. Many of the chemicals are still in the experimental stage so phytotoxicity data may not be complete on them.

USES: Since this manual was designed primarily for use in the United States, the plants and animals which the different pesticides are registered for use on by the Environmental Protection Agency and the United States Department of Agriculture are listed under this heading. This can serve as a guide for usage outside of the United States. An attempt was made to list all the registered uses at the time of publication, but many uses may have been deleted or added since then. Your farm advisor, county agent, or chemical supplier can also give you proper verification before applying to a questionable usage. A good rule to remember is; don't use a pesticide if the desired usage is not stated on the chemical label unless it has been confirmed by a reliable source. *Read the label carefully.*

Experimental uses, so designated, are mentioned for some of the newer compounds. These may or may not be registered for use in the next few years.

RATES: The extremes of high and low dosages are stated in most cases on a per acre basis and on a per 100 gallons of water basis. The average dosages used should normally fall in between these rates. Your supplier or county agent can give you much more accurate information on this for your specific locality or situation.

IMPORTANT DISEASES CONTROLLED OR PREVENTED: The heading is self-explanatory in that only the pests considered by the author to be of major importance are mentioned. In the interest of simplicity and space, all the pests a certain chemical will control or prevent could not be listed.

APPLICATION: This, at its best, is only a general guide to the application of these compounds. As locality, weather, rates, crops, etc., vary greatly, only a general recommendation can be given. Authorities in the reader's locality can give a much more specific recommendation.

PRECAUTIONS: This is self-explanatory in that the possible hazards connected with the use or application of the specific compound are mentioned.

RELATED MIXTURES: Mixtures containing the compound previously mentioned are listed here together with the company which produces them. Due to space restrictions, all such mixtures could not be mentioned, so only a few with registered trade names were selected. They are mentioned merely to let the reader know they are available and to avoid confusion of the different names.

RELATED COMPOUNDS: Pesticides which are closely related to the above compounds are listed. These, so listed, are used to a very limited extent, and do not warrant a full page on them. Only a brief description is given.

STATEMENT OF WARRANTY

The author and/or publisher are in no way responsible for the application, etc., of the chemicals mentioned. They make no warranties, expressed or implied, as to the accuracy or adequacy of any of the information presented in the writing.

NOTICES

Since new pesticides are constantly being introduced, a revision of this manual will be available when the number of such chemicals warrant the writing. As of this writing, there are a series of four manuals available: *Agricultural Chemicals Book I - Insecticides and Acaricides*; *Agricultural Chemicals Book II - Herbicides*; *Agricultural Chemicals Book III - Miscellaneous Chemicals, Fumigant, Growth Regulators, Repellents, and Rodenticides*; and *Agricultural Chemicals Book IV - Fungicides*. More information may be obtained by writing the publisher.

TRADEMARKS

The material in this book has been assembled from a multitude of labels, bulletins, instruction sheets, etc., published by the various companies for the public's information in the use of their products. For the sake of simplicity, reference to and use of registered trademarks has been eliminated. This should, by no means, indicate the absence of proprietary right on the use of such words. Also, by the omission of certain trade names either unintentionally or from lack of space, the author should not be considered to be endorsing only the companies whose brand names are listed.

TABLE OF CONTENTS

Page 1

	Page No.
INTRODUCTION	i
HOW TO USE MANUAL	i-iii
NAMES, COMPOUNDS & MIXTURES	v-xiii
INORGANICS	1- 20
METAL ORGANICS	21- 34
ANTIBIOTICS.....	35- 44
CARBAMATES.....	45- 60
MISCELLANEOUS ORGANIC FUNGICIDES ...	61-150
GLOSSARY.....	151-175
ADDRESS OF BASIC MFGRS.....	176-181

Page 21

Page 35

Page 45

Page 61

Page 151

NAMES & COMPOUNDS & MIXTURES

A

2-AB.....	101
2 Aminobutane.....	101
Aaterra.....	78
Acti-dione.....	39
Acti-dione PM.....	40
Acti-dione RZ.....	40
Acti-dione TGF.....	40
Acti-dione Thiram.....	40
Actispray.....	39
Acylon.....	143
Afugan.....	113
Agrimycin 17.....	37
Agri-Strep.....	37
Agrosan.....	31
Aliette.....	32
Allisan.....	94
Altone.....	59
Amiral.....	126
Ammonia Gas.....	14
Anilazine.....	74
Antene.....	50
Anthracol.....	59
Apl-Lustr-256.....	120
Apl-Lustr-T.....	120
Apron-35SD.....	143
Arasan.....	84
Arasan 70-S.....	86
Arboreal.....	118
Arbotect.....	120
AS-50.....	37
Aspor.....	51
Avical.....	63

B

Bacticin.....	125
Banner.....	123
Banol.....	60
Banrot.....	79
BAS 317.....	140
BAS-389.....	68
BAS 421,00.....	139
BAS-3520.....	89
Basfungin.....	134

Basic Copper.....	8
Basic Copper Carbonate.....	12
Basic Copper Sulfate.....	8
Basicop.....	8
Basitac.....	147
Batasan.....	28
Bavistin.....	135
Bay 33172.....	119
Bay-78418.....	105
Baycor.....	128
Bay KWG 0519.....	127
Bay KWG 0599.....	128
Bayleton.....	126
BAY-MEB-6447.....	126
Baytan.....	127
BCM.....	135
Beacon.....	132
Beam.....	121
Benalaxyl.....	145
Benlate.....	118
Benodanil.....	140
Benomyl.....	118
Bim.....	121
Binapacryl.....	87
Bioquin 1.....	25
Biphenyl.....	98
Bitertanol.....	128
Bla-S.....	41
Blascide.....	121
Blasticidin.....	41
Blasticidin-S.....	41
Blazon.....	75
Blitane.....	48
Blithane.....	52
Blitox.....	7
Bloc.....	115
Blue Copperas.....	4
Blue-Shield.....	10
Bluestone.....	4
Blue Vitriol.....	4
Borax (Sodium Tetraborate).....	17
Bordeaux.....	3
Bordo Mixture.....	3
Botec.....	96
Botran.....	94

Botrilex	63
Brascope	7
Brassical	63
Bravo	75
Brestan	28
Brimestone	15
Bromazil	149
Bromosan	132
Broncot	92
Bronopol	92
Brown Copper Oxide	11
BSZ	14
Buntosan	48
Bupirimate	114
Busan-30	122
Busan-72	122
Butafume	101
Buthiobate	117
Butrizol	97

C

Caddy	18
Cadminate	26
Cadmium Sulfate	19
Cad-trete	85
Calirus	140
Calixin	132
Caltan	73
Caocobre	11
Caprane	86
Capryl	86
Captafol	71
Captan	70
Captane	70
Carbamate	49
Carbatene	53
Carbazine	50
Carbendazim	135
Carboxin	66
Carpene	90
Cekucap	86
Cekusil	31
Cela W524	82
Cellu-Quin	25
Celmer	31
Cercobin	131
Cercobin-M	130
Cercobin Methyl	130

Ceresan Universal	31
CGA-38140	144
CGA-48988	143
CGA-64250	123
CGA-64251	124
Chem-Bam	57
Chinomethionat	103
Chinomethionate	103
Chipco-26019	108
Chloroneb	83
Chlorothalonil	75
Citcop	23
Citrusperse	14
CNA	94
CNC	24
Coal Tar Oils	65
Cobox	7
Cobox Blue	7
Cobredon	12
C-O-C-S	6
Codex	7
Consul	15
Cop-O-Cide	23
Copoloid	23
Copox	11
Cop-O-Zinc	14
Copper 5 Dust	8
Copper 8	25
Copper Ammonium Carbonate	13
Copper Calcium Oxycchloride	8
Copper-Count-N	13
Copper Cure	24
Copperfine-Zinc	4
Copper Hydroxide	10
Copper Hydroxysulfate	8
Copper Linoleate	23
Copper Naphthenates	24
Coppermate	24
Copper-Nordox	11
Copper Oleate	23
Copper Oxide	11
Copper Oxinate	25
Copper Oxychloride	7
Copper Oxychloride Sulfate	6
Copper Oxysulfate	8
Coppersan	7

Copper-Sandoz	11
Copper-Sardez	11
Copper Sulfate	4
Copper Sulfate Monohydrate	5
Copper Uversol	24
Coprantol	7
Copravit	7
Cop-R-Nap	24
Copro-53	6
Coptox	7
Corbel	139
Corozate	50
Correx	118
Cosan	15
Cosan-80	15
Cosmic	133
Coxyson	7
Coxysul	6
Creosote	25
Crotothane	86
Cufram-Z	58
Cufraneb	58
Cumin	50
Cunilate	25
Cuprantol	7
Cupravit	7
Cupravit Blue	10
Cupravit Green	7
Cupric Carbonate	12
Cuprin	7
Cuprinol Brown	24
Cuprinol Green	24
Cuprocide	11
Cuproffaffaro	7
Cuprokylt	7
Cuprol	7
Cuprosan Blue	7
Cuprous Oxide	11
Cuprovinol	7
Cuprox	7
Cuproxol	7
Curamil	113
Curitan	90
Curzate	142
Cycloheximide	39
Cycosin	130
Cymoxanil	142
Cyprex	90

D

Daconil 2787	75
DAPA	87
DCNA	94
DCMO	66
DCMOD	65
DDC	55
Decco Salt #19	120
Decco Salt #21	55
Deccosol 125	99
Deccosol L	99
Deccosol M	99
Deccosol-P	99
Deccosol-SP	99
Deccotane Tutane	101
Decco WT-53	99
Deccozil	149
Delan	107
Delsene	135
Demosan	83
Denmert	117
Dersosal	135
Dibam	58
Dichlofluanid	80
Dichlone	109
Dichlozolinat	148
Diclobutrazol	129
Dicloran	94
Difolatan	71
Difosan	71
Dikar	56
Dimethirimol	112
Dinobuton (Acrex)	87
Dinocap	86
Dinonsan	130
Diphenyl	98
Dipher	51
Direz	74
Dithane A-40	57
Dithane D-14	57
Dithane M-22	47
Dithane M-22 Special	48
Dithane M-45	54
Dithane R-24	97
Dithane S-31	48
Dithane Z-78	51
Dithianon	107
Ditiozin	51

Ditranil	94
DNBP	99
DNOCP	86
Dodemorph	138
Dodine	90
Dokirin	25
Doquadine	90
Dowcide 1	100
Dowcide 7	64
Dowcide A	99
DPX-3217	142
Dowco-444	111
Drazoxolone	88
DRB	114
Drupina	50
DSE	57
Duosan	130
Durosan	131
Durotox	64
Du-ter	27
Dyanacide	31
Dyrene	74

E

Earthcide	63
Easout	130
Eau Grison	17
EDDP	105
Edifenphos	105
EL-222	115
EL-228	116
EL-291	121
Electrosulph	15
Elmosan	118
Elosal	15
Elvaron	80
Enovit	131
Enovit-Super	130
Enozin	51
Etaconazole	124
ETCMTB	78
Ethazol	78
Ethirimol	110
ETMT	78
Etridiazol	78
Euparen	80
Euparene	80

Euparen-M	81
Exotherm	75

F

Fenaminosulf	87
Fenarimol	115
Fenfuram	96
Fennite-A	29
Fenolovo	27
Fenpropimorph	139
Fentin	27
Fentinacetate	28
Fentin Hydroxide	27
Ferbam	49
Ferbame	49
Ferberk	49
Fermide	84
Fermocide	49
Fernacol	84
Fernasan	84
Fluoroimide	146
Focal	135
Folosan	63 & 64
Folpan	72
Folpet	72
Fongarid	144
Fore	54
Forstan	103
Fosetyl-AL	32
Freshgard	149
Fruitdo	25
Fthalide	73
Fuboridazole	119
Fuji-One	141
Fungaflor	149
Fungiclor	63
Funginex	82
Fungi-Rhap	11
Fungo	130
Fungostop	50
Furalaxyl	144
Furavax	67
Furidazol	119
Furmecyclox	68
Furmetamid	68
Fusarex	64
Fytolan	7
Fytostrep	37

G

Galgen	145
Galex	125
Gallotox	31
Galltrol-A	126
Ganocide	88
Gerox	37
Glycophene	108
Glyodex	92
Glyodin	91
Golden Dew	15
Grandstand	111
GreX	118
Gro-Tone Liquid	23
Guanidine	90
Guanoctine	93
Guazatine	93

H

H 719	67
Haitin	27
Hexachlorophene	102
Hexaferb	49
Hexasul	15
Hexathane	51
Hexathir	84
Hexazir	50
Hexide	102
Hinobaycide	106
Hinosan	105
Hizarocin	39
Hoe 2873	113
Hokko-Mycin	37
Homai	131
Hydroxyisoxazole	141
Hymexazol	141

I

IBP	104
Imazalil	149
Indar	97
Iprodione	108
IPT	141
Iscothan	86
Isobac	102
Isoprothiolane	141

K

Kaken	39
Karathane	86
Kasugamycin	40
Kasumin	40
Kasumiron	41
Kauritil	7
K-Cop	13
Kemate	74
Kemdazin	135
Kilcop-53	8
Kitazin	104
Kitazin-P	104
Kiwi Luster	94
Knew	23
Knockmate	49
Koban	78
Kobu	63
Kobutol	63
Kocide	10
Kocide 20/20	11
Kolofog	15
Kolospray	15
Kop Karb	12
Kromad	85
KSM	40
Kumulus	15
Kuprite	11
Kypman	47
Kypzin	51

L

Labilite	130
Lauxtol A	64
Lemonene	98
Lesan	87
Leytosan	31
Lignasan	135
Lignasas-BLP	118
Lime Sulfur	17
Liquiphene	31
Lonacol	51
Lonocol M	47
Lustr-223	100

M

M8164	148
M9834	145
Malachite	12
Mancofol	54
Mancozeb	54
Maneb	47
Maneba	47
Manebgan	47
Manessan	47
Manex	47
Manzate 200	54
Manzati	47
Manzeb	54
Manzin-80	54
MBC	135
MC 25	93
MEB	47
Melprex	90
Meltatox	138
Mepronil	147
Merpan	70
Mertect	120
Metalaxyl	143
Methfuroxam	67
Methylene Chloride	99
Methylmetiram	134
Metiram	53
Mezene	50
Microblu-53	8
Microcop	7
Microflotox	15
Mikal	32
Milbam	50
Milban	138
Mil-Col	88
Milcurb	112
Milcurb-Super	110
Mildex	86
Mildothane	130
Milgo	110
Milmer	25
Milstem	110
Milttox	53
Mistral	139
MK 23	146
Moncut	137
Morestan	103

Morocide	87
MP-11	33
Mycodifol	73
Myco Shield	38 & 39
Mycozol	120

N

Nabac	102
Nabam	57
Nabame	57
Nabasan	57
Naptox	24
Naramycin	39
Nectryl	100
Nemisor	54
Neo-Asozin	30
Neo Su Sin Gin-S	30
Neo-Voronit	119
Nespor	47
Neutrocop	5
Niacide	49
Nimrod	114
NNF-136	137
Nomersan	84
Nopocide	75
Nuarimol	116
Nu-Cop	5

O

Oleocuvire	11
OPP	100
Ormalin	89
Orthocide	70
Orthorix	17
Orthoxenol	100
Oxime-Copper	25
Oxycarboxin	65
Oxythioquinox	103

P

Pallinal	54
Panoctine	93
Panolil	93
Panoram	96
Parzate	57
Parzate-C	51
Patrol	28

Sankel.....	53	TBCS-53.....	8
Sanspor.....	71	TBZ.....	120
Saprol.....	82	TCMTB.....	122
Septal.....	136	TC-90.....	23
Serinal.....	148	Techlofthalam.....	77
Sicarol.....	136	Tecnazene.....	64
Sigma.....	130	Tecto.....	120
SN-66752.....	60	Term-I-Trol.....	64
Sodium Arsenite.....	13	Termil.....	75
Sodium Thiosulfate Pentahydrate.....	17	Terraclor.....	63
Sofril.....	15	Terraclor Super X.....	79
Sol Kop 10.....	13	Terramycin.....	38
Sonax.....	124	Terrazole.....	78
Sopp.....	99	Tersan 75.....	84
Sopracol.....	88	Tersan-1991.....	118
Sorbic Acid.....	65	Tersan-LSR.....	47
Sparticide W.P.....	146	Tersan-SP.....	83
Spectro.....	132	Tetrapom.....	84
Sperlox-S.....	15	Thiabendazole.....	120
Sperlox-Z.....	51	Thibenzole.....	120
Spersul.....	15	Thiolux.....	15
Sportak.....	150	Thion.....	15
Spotrete.....	84	Thiophal.....	72
Spray-Cop.....	5	Thiophanate.....	131
Spring-Bak.....	57	Thiophanate Methyl.....	130
Stand-Up.....	84	Thiosan.....	84
Storite.....	120	Thiotox.....	84
Streptomycin.....	37	Thiovit.....	15
Streycin Sulfate.....	37	Thiram.....	84
Subdue.....	143	Thiramad.....	84
Sulfocide.....	17	Thirasan.....	84
Sulfonimide.....	71	Thylate.....	84
Sulforon.....	15	Thynon.....	107
Sulfur.....	15	Tiezene.....	51
Sulkul.....	15	Tilcarex.....	63
Sulsol.....	15	TILT.....	123
Sumilex.....	69	Tinestan.....	28
Sumisclex.....	69	Tinmate.....	29
Super Cosan.....	15	Tirampa.....	84
Super-CU.....	8	TMTD.....	84
Supertin.....	27	TMTDS.....	84
Suzu.....	28	Tobaz.....	121
Suzu-H.....	27	Tolclofos-Methyl.....	106
Syllit.....	90	Tolylfluanid.....	81

T

Tachigaren.....	141	Topane.....	99
Taytox.....	13	Top-Cop.....	8
		Topsin.....	131
		Topsin-E.....	131

Topsin-M	130
Topsin WP Methyl	130
Torsite	100
TPTA	28
TPTH	27
TPTOH	27
Trametan	84
Trevin	130
Triadimefon	126
Triadimenol	127
Triasyn	74
Triazine	74
Tri-Basic	8
Tricarbamix	52
Tricarbamix Fe	50
Tricuzin	52
Tricyclazole	121
Tridemorph	132
Triforine	82
Trifungol	49
Trimangol	47
Trimanzone	48
Trimastan	48
Trimidal	116
Trimifol	73
Tri-Milttox	55
Trimunol	116
Tri-PCNB	63
Triphenyltin Chloride	29
Tripomol	84
Triquintam	86
Triscabol	50
Tritisán	63
Tritofterol	51
Trivax	67
Trizionc	58
Troysan	24
Truban	78
Tsitrex	90
Tuads	84
Tubothane	47
Tubotin	27 & 28
Tuscopper	24

U

Ultra-Sofril	118
--------------	-----

V

Validacin	44
Validamycin	44
Valimon	44
Vangard	124
Vegeta-Ethylene Thiuram Monosulphide	86
Venturool	90
Vi-Cad	18
Vigil	129
Vinclozolin	89
Vitavax	66
Vitigran	7
Vitigran Blue	7
Vondcaptan	70
Vondodine	90

W

Wiltz-65	24
WT-12	100
WT-22	100

Z

ZC	50
Zebtox	51
Zerlate	50
Zidan	51
Zimate	51
Zinc Coposil	14
Zinc Copro	14
Zinc Metiram	53
Zinc Naphthenate	25
Zinc Petroleum Sulfonate	99
Zineb	51
Zinkcarbamate	50
Zinosan	51
Ziram	50
Ziramvis	50
Zirasan	50
Zirberk	50
Zirex	50
Ziride	50
Zitox	50
Zolvis	15
Zyban	131

INORGANICS