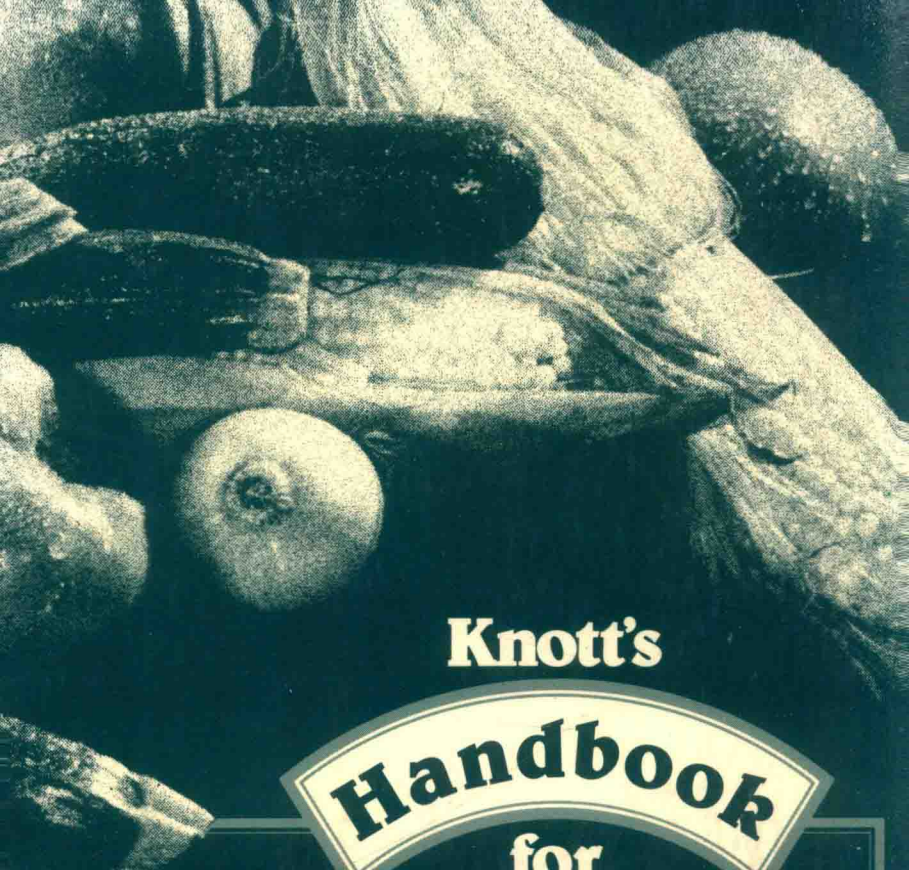




Knott's

Handbook

for

VEGETABLE GROWERS

Third Edition

**Oscar A. Lorenz &
Donald N. Maynard**

KNOTT'S

HANDBOOK FOR VEGETABLE GROWERS

THIRD EDITION

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KNOTT'S
**HANDBOOK FOR
VEGETABLE GROWERS**

THIRD EDITION

PREFACE

Third edition

Technological advances, new nomenclature, and changes in governmental regulations that have occurred since 1980 are reflected in the third edition of *Handbook for Vegetable Growers*. Whenever possible and appropriate, information in the second edition has been made current.

The general format of the second edition has been retained. Part 2 has been expanded to include plant growing and greenhouse vegetable production. Where appropriate, information on strawberry has been added because it is herbaceous, is cultured as an annual in the major producing states, and for the most part is grown by vegetable growers rather than fruit growers.

Much new technical information has been included. For example, sections on integrated pest management, soil solarization, row covers, polyethylene mulches, gel seeding, seed priming, vegetable quality, compatibility of produce in mixed loads, and vegetable marketing alternatives have been added. Every effort has been made to include the most practical and current information.

Again we express gratitude to our colleagues who have provided materials and suggestions, and who have encouraged us in this revision. We hope that *Handbook for Vegeta-*

ble Growers will continue to be a ready reference for those concerned with vegetable crops as envisaged by Dr. Knott when the *Handbook* was first published in 1956.

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February 1988

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PART 1

VEGETABLES AND THE
VEGETABLE INDUSTRY

BOTANICAL NAMES OF VEGETABLES

FOREIGN NAMES OF VEGETABLES

VEGETABLE PRODUCTION STATISTICS

CONSUMPTION OF VEGETABLES

NUTRITIONAL COMPOSITION OF VEGETABLES

SELECTION OF VEGETABLE VARIETIES

BOTANICAL NAMES, COMMON NAMES, AND EDIBLE PARTS OF VEGETABLES

Botanical Name	Common Name	Edible Plant Part
<i>Monocotyledoneae</i>		
Alismataceae		
<i>Sagittaria sagittifolia</i> L.	Water-plantain family	Corm
Amaryllidaceae		
<i>Allium ampeloprasum</i> L. Porrum group	Chinese arrowhead	
<i>Allium cepa</i> L. Cepa group	Amaryllis family	
<i>Allium cepa</i> L. Aggregatum group	Leek	Leaf base
	Onion	Bulb, leaf
	Shallot, multiplier onion, potato onion	Bulb
<i>Allium cepa</i> L. Proliferum group	Egyptian onion, top onion	Bulb
<i>Allium chinense</i> G. Don.	Rakkyo	Bulb
<i>Allium fistulosum</i> L.	Welsh onion, Japanese bunching onion	Leaf
<i>Allium sativum</i> L.	Garlic	Bulb
<i>Allium schoenoprasum</i> L.	Chive	Leaf
<i>Allium tuberosum</i> Rottl. ex K. Spreng	Chinese chive	Leaf
Araceae		
<i>Colocasia esculenta</i> (L.) Schott.	Arum family	Corm
<i>Xanthosoma sagittifolium</i> (L.) Schott.	Taro, dasheen	Corm
Cyperaceae		
<i>Eleocharis dulcis</i> (Burm. f.) Trin. ex Henschel	Malanga, yautia	Corm
	Sedge family	
	Water chestnut	Corm

Dioscoreaceae		
<i>Dioscorea alata</i> L.	Yam family	Tuber
<i>Dioscorea batatas</i> Decne.	Greater yam	Tuber
<i>Dioscorea rotundata</i> Poir.	Chinese yam	Tuber
Gramineae	White yam	
<i>Zea mays</i> var. <i>praecox</i> Bonaf.	Grass family	Mature seed
<i>Zea mays</i> var. <i>rugosa</i> Bonaf.	Popcorn	Immature seed
Liliaceae	Sweet corn	
<i>Asparagus officinalis</i> L.	Lily family	Shoot
Zingiberaceae	Asparagus	
<i>Zingiber officinale</i> Roscoe	Ginger family	Rhizome
	Ginger	
Dicotyledoneae		
Amaranthaceae		
<i>Amaranthus tricolor</i> L.	Amaranth family	Leaf
Araliaceae	Tampala, Chinese spinach	
<i>Aralia cordata</i> Thunb.	Ginseng family	Shoot
<i>Panax quinquefolius</i> L.	Udo	Root
Basellaceae	American ginseng	
<i>Basella alba</i> L.	Basella family	Leaf
Chenopodiaceae	Malabar spinach	
<i>Atriplex hortensis</i> L.	Goosefoot family	Leaf
<i>Beta vulgaris</i> L. Cicla group	Orach	Leaf
<i>Beta vulgaris</i> L. Crassa group	Swiss chard	Leaf
<i>Spinacia oleracea</i> L.	Beet	Root, leaf
Compositae	Spinach	Leaf
<i>Articum lappa</i> L.	Sunflower family	
<i>Chrysanthemum coronarium</i> L.	Burdock	Root
	Garland chrysanthemum	Shoot

BOTANICAL NAMES, COMMON NAMES, AND EDIBLE PARTS OF VEGETABLES—Continued

Botanical Name	Common Name	Edible Plant Part
<i>Cichorium endivia</i> L.	Endive, escarole	Leaf
<i>Cichorium intybus</i> L.	Witloof chicory, radicchio	Leaf
<i>Cynara cardunculus</i> L.	Cardoon	Petiole
<i>Cynara scolymus</i> L.	Globe artichoke	Immature flower
<i>Helianthus tuberosus</i> L.	Jerusalem artichoke	Tuber
<i>Lactuca sativa</i> L.	Lettuce	Leaf
<i>Petasites japonicus</i> (Siebold & Zucc.) Maxim.	Fuki	Petiole
<i>Scolymus hispanicus</i> L.	Spanish oyster plant	Root
<i>Scorzonera hispanica</i> L.	Black salsify	Root
<i>Taraxacum officinale</i> Wiggers	Dandelion	Leaf
<i>Tragopogon porrifolius</i> L.	Salsify	Root
Convolvulaceae	Morning-glory family	
<i>Ipomoea aquatica</i> Forsk.	Water spinach	Leaf
<i>Ipomoea batatas</i> (L.) Lam.	Sweet potato	Root, leaf
Cruciferae	Mustard family	
<i>Armoracia rusticana</i> P. Gaertn., B. Mey & Scherb.	Horseradish	Root
<i>Barbarea verna</i> (Mill.) Asch.	Upland cress	Leaf
<i>Brassica juncea</i> (L.) Czerniak.	Mustard greens	Leaf
<i>Brassica napus</i> L. Napobrassica group	Rutabaga	Root
<i>Brassica napus</i> L. Pabularia group	Siberian kale, Hanover salad	Leaf
<i>Brassica oleracea</i> L. Acephala group	Kale, collard	Leaf
<i>Brassica oleracea</i> L. Alboglabra group	Chinese kale	Leaf

Brassica oleracea L. Botrytis group
Brassica oleracea L. Capitata group
Brassica oleracea L. Gemmifera group
Brassica oleracea L. Gongylodes group
Brassica oleracea L. Italica group
Brassica rapa L. Chinensis group
Brassica rapa L. Pekinensis group
Brassica rapa L. Perviridis group
Brassica rapa L. Rapifera group
Brassica rapa L. Ruvo group
Crambe maritima L.
Eruca vesicaria sativa (Mill.) Thell.
Lepidium sativum L.
Nasturtium officinale R. Br.
Raphanus sativus L.
Raphanus sativus L. Longipinnatus group
 Cucurbitaceae
Benincasa hispida (Thunb.) Cogn.

Citrullus lanatus (Thunb.) Matsum. & Nakai
Citrullus lanatus var. *citroides*
 (L. H. Bailey) Mansf.
Cucumis anquira L.
Cucumis melo L. Inodorus group

Cucumis melo L. Reticulatus group
Cucumis sativus L.
Cucurbita maxima Duchesne
Cucurbita mixta Pang.

Cauliflower
 Cabbage
 Brussels sprouts
 Kohlrabi
 Broccoli
 Pak-choi, Chinese mustard
 Pe-tsai, Chinese cabbage
 Spinach
 Turnip
 Broccoli raab
 Sea kale
 Rocket salad
 Garden cress
 Watercress
 Radish
 Daikon
 Gourd family
 Chinese winter melon, wax
 gourd
 Watermelon
 Citron

 West Indian gherkin
 Honeydew melon, casaba
 melon
 Muskmelon, Persian melon
 Cucumber
 Winter squash
 Cushaw squash

 Immature flower
 Leaf
 Axillary bud
 Stem
 Immature flower
 Leaf
 Leaf
 Leaf
 Root, leaf
 Leaf
 Leaf
 Leaf
 Leaf
 Leaf
 Root
 Root

 Fruit

 Fruit
 Fruit

 Fruit
 Fruit

 Fruit
 Fruit
 Fruit
 Fruit

BOTANICAL NAMES, COMMON NAMES, AND EDIBLE PARTS OF VEGETABLES—Continued

Botanical Name	Common Name	Edible Plant Part
<i>Cucurbita moschata</i> (Duchesne) Poir.	Winter crookneck squash	Fruit
<i>Cucurbita pepo</i> L. var. <i>pepo</i>	Pumpkin, acorn squash	Fruit
<i>Cucurbita pepo</i> var. <i>melopepo</i> (L.) Alef.	Bush summer squash	Fruit
<i>Lagenaria siceraria</i> (Mol.) Standl.	Calabash gourd, zucca melon	Fruit
<i>Luffa acutangula</i> (L.) Roxb.	Chinese okra	Fruit
<i>Luffa aegyptiaca</i> Mill.	Sponge gourd	Fruit
<i>Momordica charantia</i> L.	Bitter melon	Fruit
<i>Sechium edule</i> (Jacq.) Swartz	Chayote	Fruit
<i>Trichosanthes anguina</i> L.	Snake gourd	Fruit
Euphorbiaceae	Spurge family	Fruit
<i>Manihot esculenta</i> Crantz	Cassava, yuca	Root
Leguminosae	Pea family	
<i>Glycine max</i> (L.) Merrill	Soybean	Seed
<i>Pachyrhizus erosus</i> (L.) Urb.	Jicama, yam bean	Root
<i>Pachyrhizus tuberosus</i> (Lam.) A. Spreng.	Potato bean	Root
<i>Phaseolus acutifolius</i> var. <i>latifolius</i> G. Freem.	Tepary bean	Seed
<i>Phaseolus coccineus</i> L.	Scarlet runner bean	Fruit
<i>Phaseolus limensis</i> Macfady.	Lima bean	Seed
<i>Phaseolus limensis</i> var. <i>limenanus</i> L. H. Bailey	Bush lima bean	Seed
<i>Phaseolus lunatus</i> L.	Sieva bean	Seed
<i>Phaseolus vulgaris</i> L.	Snap bean	Fruit, seed
<i>Phaseolus vulgaris</i> var. <i>humilis</i> Alef.	Bush snap bean	Fruit, seed
<i>Pisum sativum</i> L.	Pea	Seed

<i>Pisum sativum</i> var. <i>arvense</i> (L.) Poir.	Field pea	Seed
<i>Pisum sativum</i> var. <i>macrocarpon</i> Ser.	Edible-podded pea	Fruit
<i>Psophocarpus tetragonolobus</i> (L.) DC	Winged bean	All
<i>Trigonella foenum-gracecum</i> L.	Fenugreek	Leaf
<i>Vicia faba</i> L.	Broad bean, fava bean, horse bean	Seed
<i>Vigna aconitifolia</i> (Jacq.) Marechal	Moth bean	Seed
<i>Vigna angularis</i> (Willd.) Ohwi & Ohashi	Adzuki bean	Fruit, seed
<i>Vigna mungo</i> (L.) Hepper	Urd, black bean	Fruit, seed
<i>Vigna radiata</i> (L.) R. Wilcz.	Mung bean	Fruit, sprouts
<i>Vigna umbellata</i> (Thunb.) Ohwi & Ohashi	Rice bean	Fruit
<i>Vigna unguiculata</i> (L.) Walp.	Southern pea	Fruit, seed
<i>Vigna unguiculata cylindrica</i> (L.) Van Eselt. ex Verdc.	Catjang	Seed
<i>Vigna unguiculata sesquipedalis</i> (L.) Verdc.	Yard-long bean	Fruit
Malvaceae	Cotton family	
<i>Abelmoschus esculentus</i> (L.) Moench	Okra	Fruit
<i>Hibiscus sabdariffa</i> L.	Roselle	Flower
Martyniaceae	Martynia family	
<i>Proboscidea louisianica</i> (Mill.) Thell.	Martynia	Fruit
Nymphaeaceae	Water-lily family	
<i>Nelumbo nucifera</i> Gaertn.	Lotus	Root
Polygonaceae	Buckwheat family	
<i>Rheum rhabarbarum</i> L.	Rhubarb	Petiole
<i>Rumex acetosa</i> L.	Garden sorrel	Leaf
<i>Rumex patientia</i> L.	Patience dock	Leaf
<i>Rumex scutatus</i> L.	French sorrel	Leaf
Rosaceae	Rose family	
<i>Fragaria</i> × <i>anánassa</i> Duchesne.	Strawberry	Fruit

BOTANICAL NAMES, COMMON NAMES, AND EDIBLE PARTS OF VEGETABLES—Continued

Botanical Name	Common Name	Edible Plant Part
Solanaceae		
<i>Capsicum annuum</i> var. <i>annuum</i> L.	Potato family Pepper: Bell, cayenne, chili, cone, red cluster	Fruit
<i>Capsicum frutescens</i> L.	Tabasco pepper	Fruit
<i>Cyphomandra betacea</i> (Cav.) Sendtn.	Tree tomato	Fruit
<i>Lycopersicon esculentum</i> Mill.	Tomato	Fruit
<i>Lycopersicon esculentum</i> var. <i>cerasiforme</i> (Dunal) Alef.	Cherry tomato	Fruit
<i>Lycopersicon esculentum</i> var. <i>pyriforme</i> (Dunal) Alef.	Pear tomato	Fruit
<i>Lycopersicon pimpinellifolium</i> (Jusl.)	Currant tomato	Fruit
<i>Physalis ixocarpa</i> Brot.	Tomatillo	Fruit
<i>Physalis pruinosa</i> L.	Husk tomato	Fruit
<i>Solanum melongena</i> L.	Eggplant	Fruit
<i>Solanum muricatum</i> Ait.	Pepino	Fruit
<i>Solanum tuberosum</i> L.	Potato	Tuber
Tetragoniaceae		
<i>Tetragonia tetragonioides</i> (Pall.) O. Kuntze	Carpetweed family	Leaf
Umbelliferae		
<i>Anthriscus cerefolium</i> (L.) Hoffm.	New Zealand spinach	Leaf
<i>Apium graveolens</i> L. var. <i>dulce</i> (Mill.) Pers.	Parsley family	Petiole
<i>Apium graveolens</i> L. var. <i>rapaceum</i> (Mill.) Gaud-Beaup.	Chervil	Root
<i>Coriandrum sativum</i> L.	Celery	Leaf
	Celeriac	
	Chinese parsley, cilantro	

<i>Daucus carota</i> L.	Carrot	Root
<i>Foeniculum vulgare</i> Mill.	Fennel	Leaf
<i>Foeniculum vulgare</i> var. <i>azoricum</i> (Mill.) Thell.	Florence fennel	Leaf
<i>Pastinaca sativa</i> L.	Parsnip	Root
<i>Petroselinum crispum</i> (Mill.) Nyman ex A. W. Hill	Parsley	Leaf
<i>Petroselinum crispum</i> var. <i>neapolitanum</i> Danert	Italian parsley	Leaf
<i>Petroselinum crispum</i> var. <i>tuberosum</i> (Bernh.) Crov.	Turnip-rooted parsley	Root
Valerianaceae	Valerian family	
<i>Valerianella locusta</i> (L.) Betcke	Corn salad	Leaf

Botanical names conform to *Hortus Third*, Macmillan, New York (1976). Families are alphabetized within Monocotyledoneae and Dicotyledoneae and genera are alphabetized within families for convenience.

NAMES OF VEGETABLES IN FOREIGN LANGUAGES

English	French	Dutch	German	Danish	Spanish	Italian
Artichoke	artichaut	artisjok	Artischocke	artiskok	alcachofa	carciofo
Asparagus	asperge	asperge	Spargel	hestebønne	espárrago	sparago
Broad bean	fève	tuinboon	Puffbohne	bønne	haba	fava
Snap bean	haricot	boon	Bohne	rødbede	ejote	fagiolino
Beet	betterave rouge	kroot	rote Rübe	broccoli	betabol	bietola da orta
Broccoli	chou-brocoli	broccoli	Brokkoli	rosenkål	brocoli	broccolo
Brussels sprouts	chou de Bruxelles	spruitkool	Rosenkohl	kål	col de Bruselas	cavolo di Brussels
Cabbage	chou	kool	Kohl	karot	col, repollo	cavolo
Carrot	carotte	peen	Karotte	blomkål	zanahoria	carota
Cauliflower	chou-fleur	bloemkool	Blumenkohl	selleri	coliflor	cavolfiore
Celery	céleri	selderij	Sellerie	knoldselleri	apio	sedano
Celeriac	céleri-rave	knolselderij	Knollensellerie	cikorie	apio nabo	sedano rapa
Chicory	chicorée	cichorei	Zichorien-wurzel	kinesisk kål	achicoria raíz	cicoria
Chinese cabbage	chou de Chine	Chinese kool	Chinakohl	sukermajs agurk	col de China	cavolo cinese
Sweet corn	mais sucré	suikermajs	Zuckermais	aegplante	elate	mais dolce
Cucumber	concombre	komkommer	Gurke	endivie	pepino	cetriolo
Eggplant	aubergine	Eierplant	Eierfrucht	peberrod	berenjena	melanzana
Endive	chicorée frisée	andijvie	Endivie	grøn kål	escarola	indivia
Horseradish	raifort	mierikswortel	Meerrettich	sin cabeza	rábano rusticano	ramolaccio
Kale	chou vert	groene kool	Grünkohl			cavolo verza