Challenges for Calculating Total Removed Nitrogen in Nursery and Floricultural Production

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Applied – Removed Nitrogen per Acre

A = Applied Nitrogen in lbs/(acre year) (fertilizer, irrigation water, compost, etc.) R = Nitrogen Removed with the crop: Estimated by multiplying yield by a cropspecific coefficient

A - R = Applied - Removed

This is used as an estimate of the nitrogen that can be lost to the environment by leaching or runoff

Example

Almond kernel yield = 3500 lb/ac = 1.75 ton/ac

R = 1.75 ton/ac x 136 lbs of N/ton = = 238 lbs of N/ac

If applied N is 300 lbs/acre

A-R = 300-238 = 62 lbs of N/acre

Table 3: Overview of N concentrations in harvested plant parts of tree and vine crops. The highlighted commodities are those updated in this report.

Commodity Last		N in ha	rvested plant parts	CV (%)	Page
Almonds		136	lbs/ton of kernels	4.1	
Apples		1.08	lbs/ton of fruits	35.1	
Apricots		5.56	lbs/ton of fruits	114	
Cherries		4.42	lbs/ton of fruits	19.8	
Figs		2.54	lbs/ton of fruits	18.1	
Grapefruit		2.96	lbs/ton of fruits	7.8	
Grapes - Raisins		10.1	lbs/ton @ 15% moisture	5.8	
Grapes - Table		2.26	lbs/ton of grapes	5.8	
Grapes - Wine		3.60	lbs/ton of grapes	13.0	
Lemons		2.58	lbs/ton of fruits	10.0	
Nectarines		3.64	lbs/ton of fruits	27.1	
Olives		6.28	lbs/ton of olives	22.8	
Oranges		2.96	lbs/ton of fruits	10.9	
Peaches	03/2021	3.04	lbs/ton of fruits	19.0	15
Pears		1.29	lbs/ton of fruits	17.9	1100
Pistachios	03/2021	20.4	Ibs N/ton net green weight	21.6	17
Plums	03/2021	2.27	lbs/ton of fruits	14.5	19
Pomegranate	03/2021	3.96	lbs/ton of fruits	15.4	21
Prunes		11.2	Ibs/ton of dried fruits	16.3	
Tangerines		2.54	lbs/ton of fruits	29.2	
Walnuts	03/2021	31.8	Ibs N/ton of nuts @ 8% moist.	10.9	28

From: Nitrogen concentrations in harvested plant parts - A literature overview, Dr. Daniel Geisseler, 2021

Applicability to the nursery and floriculture industry

- 1. Harvest is not a part of a plant
- 2. No coefficients available













3. Harvest is not seasonal, it's continuous.

Reporting yearly A-R would be onerous accounting

-		TRAY	BASE		10	DER		PRICE
ITEM #	BOTANICAL NAME SLICCULENTS	SIZE	PRICE	AVAIL	TRAYS	PLANTS		TOTAL
	SUCCULENTS		3.00					
AGA00-I	AGAVE 'ATTENUATA' (Fox Tail Agave) 4" (5 Gallon Shifting Stock- Full)	10	0.72	352		_	2	-
BUL90	BULBINE FRUTESCENS 'HALLMARK' (Orange Stalled Bulbine)	50	0.60	24,000		_	3	
CAL52	CALANDRINIA SPECTABILIS JAZZ TIME (Kork Pursiane)	32	0.69	3,250		_	2	
SEN01	SENECIO MANDRALISCAE (BIBE CBBB SRCE)	32	0.00	8,224			2	~
SEN02	SENECIO SERPENS (Dwarf Blue Chalk Stick)	32	0.72	1,152			S	-
TRA10	TRADESCANTIA PALLIDA (Purple Hearts)	32	0.70	2,720			s	-
	SHRUBS		0.76	-				
ACA22	ACACIA REDOLENS 'DESERT RUG' (D.C. ACACIA)	32	0.75	2,688		_	S	
AGA50	AGAPANTHUS AFRICANUS 'WHITE' (White Lily of the Nile) *2 PPP* *Ready in 6 Weeks*	50	0.65	20,000			\$	-
ART40	ARTEMESIA 'POWIS CASTLE' (Woranwood)	50	0.68	4,600		_	\$	-
ASP60	ASPARAGUS DENSIFLORUS 'SPRENGERI' (Asparagus Fern) *5-9 PPP*	72	0.68	40,000		_	S	
AUC60	AUCUBA JAPONICA 'VARIEGATA' (Gold Dust Plant)	32	0.75	3,456			\$	
BAC50	BACCHARIS 'PIDGEON POINT' (Dwarf Coyote Brush) *Ready 30 Days*	50	0.68	25,000			\$	-
CAL68	CALLISTEMON 'LITTLE JOHN' (Dwarf Bottle Brush) *SDG SELECTED STRAIN* *Ready 6 Weeks*	50	0.70	50,000			s	
CAL69	CALLISTEMON VINIMALIS 'MACARTHUR'**#25,011 (Dig Selection) Royalty \$0.18	50	0.69	2,100			S	-
CAL77	CALLISTEMON VINIMALIS 'SLIM'#24444 (Dig Selection) Royalty \$0.18	50	0.69	5,850			5	
CAR65	CARISSA MACROCARPA 'GREEN CARPET' (Low Growing Natal Plum)	50	0.68	6,800			s	-
CAR85	CARISSA MACROCARPA 'TUTTLE' (Dwarf Natal Plum)	-50	0.68	3,250			5	-
CEA05	CEANOTHUS 'CONCHO' (California Lilac) *Ready in 4 Weeks*	50	0.70	19,800			5	-
CEA40	CEANOTHUS GRISEUS 'HORIZONTALIS' (Carmel Creeper) *Ready in 2 Weeks*	50	0.70	18,600			s	-
CEA95	CEANOTHUS GRISEUS 'YANKEE POINT' (California Lilac) *Ready in 2 Weeks*	50	0.70	13,200			s	-
CIS87	CISTUS 'SUNSET' (Magenta Rockrose)	50	0.68	1,100			s	-
COT25	COTONEASTER DAMMERI 'LOWFAST' (Bearberry Lowfast) *Ready in 4 Weeks*	50	0.68	3,200			s	-
DIE20	DIETES 'BICOLOR' (Fortnight Lily, Morea Bicolor, African Iris) *2-3 PPP* *Ready in 6 Weeks*	50	0.65	27,700	-		s	۵.,
DIE22	DIETES 'LEMON DROPS' (Fortnight Lily, Dietes Lemon Drop) *2PPP*	50	0.68	2,100			s	1
DOD69	DODONAEA VISCOSA PURPUREA (Purple Hopseed Bush)	50	0.68	20,400			s	2
DUR10	DURANTA ERECTA 'ALBA' (White Sky Flower)	50	0.60	10.200			s	-
ERE10	EREMOPHYLLA GLABRA 'GREY HORIZON' (Grev Emu Bush) PP#29.275 Royalty \$0.25	32	0.75	896			s	
EUO70	EUONYMUS JAPONICA 'MICROPHYLLA' (Microphylla Box-Leaf Euonymus)	-50	0.68	1,300			s	. 6
FAT01	FATSIA JAPONICA (Aralia Sieboldii, Japanese Aralia) *6-9 PPP*	72	0.68	31,104	-		s	
GAL10	GALVEZIA SPECIOSA (Galvezia speciosa, Island snapdragon)	50	0.68	7,500			s	
GAL20	GALVEZIA SPECIOSA 'EIRECRACKER' (Galvezia Firecracker Firecracker snandrason)	50	0.68	4 700			s	2
GEN10	CENTSTA RACEMOSA (Cyticus y Snachianus Swaethroom)	50	0.68	10 350			5	
HER11	HERE WARTEGATA (Varianted Haba Varianted)	50	0.68	12 450		_	5	
HEM02	HEADER OCALLIS STELLA BELLA' (Every rean Dwarf Vallow Davisly Blooms Sir months))	50	0.90	3 600			2	
UEMIN	UENERGO ALLIS STEELE DELEN (LITERT HE DAMAN DAVIS) DISTANCE HOURD.	26	0.85	1 972	-	_	-	-
LITTA 410	IRANEROCALLIS LITTLE DOSLARSS (ARE REMAINING DAYINY)	36	0.85	5.040				-
UET10	HEMEROCALLIS HAFFT REICHAS (Teum Daylay)	50	0.69	5,040				
HEIIO	HE TEROMELES ARBUTTFOLIA "2-3 PFF" (Toyon- CA Native)	00	0.70	65,650			3	
HIBUS	HIBISCUS AGNUS GAULT (Single Pink Piower)	32	0.60	1,696		_	3	-
HIBSS	HIBISCUS SANTANA' (Single Orange with Yellow Center)	00	0.60	3,900			3	-
HIB58	HIBISCUS 'VICE PRESIDENT' (Single Red)	50	0.60	1,800	-		5	-
LAN45	LANTANA 'NEW GOLD'	50	0.00	2,550		_	2	
LAN65	LANTANA SELLOWIANA 'TRAILING WHITE'	50	0.00	6,500			s	~
LAN80	LANTANA SELLOWIANA 'PURPLE TRAILING'	50	0.00	7,650		_	5	-
LAV53	LAVENDER 'GOODWIN CREEK' (Lavandula Goodwin Creek)	50	0.08	20,400		_	S	
LEU25	LEUCOPHYLLUM FRUTESCENS 'COMPACTA' (Compact Texas Ranger) *2 Weeks*	50	0.68	7,800			\$	-
LEO10	LEONOTIS LEONURUS (Lions Tail)	50	0.68	6,300			\$	-
LIG31	LIGUSTRUM JAPONICUM (Japanese Privet) *3 PPP* *2 Weeks*	50	0.68	17,400			\$	
MYO10	MYOPORUM PARVIFOLIUM 'PUTAH CREEK' (Creeping Myoporum)	50	0.60	18,200		_	5	-
NER38	NERIUM OLEANDER 'JANNOCH BRIGHT RED' (Jannoch Bright Red Oleander)	50	0.68	8,250		_	\$	
PHL10	PHLOMIS FRUITICOSA (Jerusalem Sage)	32	0.70	5,760			s	
PIT49	PITTOSPORUM TENUFOLIUM (Pittosporum Nigricans)	32	0.70	23,808			5	

PLEASE NOTE WE HAVE NEW FAX NUMBERS THEY ARE LISTED ABOVE*

F.	/P = Full Plants Only B/O = Bud Only	B/C =	= Bud Ci	racking B/B = Bud	& Bloom WOW = Drop Dead Gorgeous		
Group	Name	Stage	QIY O	rder Group	Name	Stage	QIY
2 SEL CACHE POT	12" Acanthus Whitewater	F/P	40	1G SELECT	1G Salvia Windwalker Royal Red Plant Selec	B/O	8
2 SEL CACHE POT	12" Begonia Dragon Wing Red	B/C	50	1G SELECT	1G Sedum Autumn Fire	B/C	5
12 SEL CACHE POT	12" Cassia Popcom	B/B	36	1G SELECT	1G Sedum Burrito	F/P	2
2 SEL CACHE POT	12" Ornamental Millet Copper Prince	F/P	16	1G SELECT	1G Shasta Daisy Becky	F/P	20
2 SEL CACHE POT	12" Ornamental Millet Purple Baron	F/P	53	1G SELECT	1G Shasta Daisy Carpet Angel Daisy	B/O	2
12 SEL CACHE POT	12" Shasta Daisy Becky	F/P	14	1G SELECT	1G Sunflower Sunfinity	B/O	19
12 SEL CACHE POT	12" Sunflower Sunfinity	B/B	60	1G SHOWCASE	1G Calamagrosstis Karl Foerster	F/P	2
SHOWCASE	8" Senecio Angel Wings	F/P	10	1G SHOWCASE	1G Mixi Retro Summer	B/B	5
IG ANNUAL	1G Marigold Xochi Orange	F/P	15	1G SHOWCASE	1G Scabiosa Focal Scoop Lavender	B/O	18
G LIMITED	1G Kniphofia Poco Orange	B/B	3	1G SHOWCASE	1G Scabiosa Scoop Blackberry	B/O	15
IG LIMITED	1G Kniphofia Poco Red	B/B	3	1G SHOWCASE	1G Scabiosa Scoop Candy	B/B	7
G LIMITED	1G Kniphofia Poco Sunset	B/C	1	1G SHOWCASE	1G Scabiosa Scoop Candy	B/O	15
G LIMITED	1G Kniphofia Poco Sunset	F/P	1	1G SHOWCASE	1G Scabiosa Scoop Cherry Vanilla	B/B	12
G SELECT	1G Arctotis Ravers Pink Sugar	B/B	15	1G SHOWCASE	1G Sempervivum SuperSemp Onyx	F/P	18
G SELECT	1G Arctotis Ravers Pink Sugar	F/P	8	1G SHOWCASE	1G Sempervivum SuperSemp Ruby	F/P	30
G SELECT	1G Canna Cannova Bronze Orange	F/P	8	1G SHOWCASE	1G Senecio Angel Wings	F/P	60
G SELECT	1G Canna Cannova Bronze Scarlet	F/P	6	4 ANNUAL	4" Begonia Brown Leaf Mix	B/B	10
G SELECT	1G Centranthus Red Valerian	F/P	18	4 ANNUAL	4" Begonia Brown Leaf Pink	B/B	25
G SELECT	1G Coreopsis Zagreb	B/B	5	4 ANNUAL	4" Begonia Brown Leaf Red	B/B	2
G SELECT	1G Cuphea Bat Face Red	B/B	7	4 ANNUAL	4" Begonia Brown Leaf White	B/B	30
G SELECT	1G Dahlia Mystic Spirit	B/O	8	4 ANNUAL	4" Begonia Green Leaf Pink	B/B	35
G SELECT	1G Echinacea Artisan™ Red Ombre	B/B	60	4 ANNUAL	4" Begonia Green Leaf Red	B/B	30
G SELECT	1G Echinacea Artisan™ Red Ombre	B/C	3	4 ANNUAL	4" Begonia Green Leaf White	B/B	30
G SELECT	1G Echinacea Artisan™ Red Ombre	F/P	25	4 ANNUAL	4" Begonia Tophat Mix	B/B	15
G SELECT	1G Echinacea Artisan™ Soft Orange	B/B	10	4 ANNUAL	4" Celosia Armor Mix	B/B	5
G SELECT	1G Echinacea Artisan™ Soft Orange	B/O	3	4 ANNUAL	4" Celosia Dracula Red	B/B	3
G SELECT	1G Echinacea Artisan™ Soft Orange	F/P	32	4 ANNUAL	4" Celosia Green Leaf Mix	B/B	15
G SELECT	1G Evolvulus Blue My Mind	B/B	40	4 ANNUAL	4" Celosia Green Leaf Orange	B/B	15
G SELECT	1G Evolvulus Blue My Mind	B/C	20	4 ANNUAI	4" Celosia Green Leaf Red	B/B	15
G SELECT	1G Evolvulus Blue My Mind	E/P	45	4 ANNUAL	4" Celosia Green Leaf Yellow	B/B	14
G SELECT	1G Eoxolove Pink Panther	B/B	3	4 ANNUAL	4" Celosia Red Leaf Red	B/B	36
G SELECT	1G Gaillardia Arizona Sun	BIO	6		A" Colous Superfine Rainhow Mix	F/D	7
G SELECT	16 Comphrena Truffula Pink	8/8	25	ANNUAL	A" Cosmos Intermediate Mix	B/B	33
G SELECT	1G Heliotrone Fragrant Delight	8/0	7		A" Cosmos Intermediate Mix	E/D	12
G SELECT	1G Lavordor Primavora	010	26	ANNUAL	4" Cosmos Intermediate Pink	0/0	0
G SELECT	1G Nonota Little Trudy Plant Select®)	D/D	20		4 Cosmos Intermediate Pink	B/D	0
GSELECT	1G Panstamon Sunsat Glow Plant Colort	8/9	7	ANNUAL	4" Cosmos Sonata Carmino	8/8	6
GSELECT	1G Plactranthus Valuat Eluis	E/D	11	M ANNUAL	4" Dahlham Daisy Goldan Eleans	B/B	9
C SELECT	10 Pudhockia Amarilla Cald	P/P	15	ANNUAL	Damivery Daisy Oblight Freede	D/D D/D	11
O DELEGT	C Rudbackia Automa Calava	0/8	10	4 ANNUAL	4 Diaminus Internegiate Mix	D/G	10
O SELECT	10 Rudbeckia Autumn Colors	8/0	20	4 ANNUAL	4 Gazaria Mix	B/B	10
OBELECT	10 Rudbeckia Deriver Daisy Plant Selecte	8/8	15	ANNUAL	4 Gazañia Mix	B/C	9
G SELECT	10 Rudbeckia Goldsturm	B/C	8	4 ANNUAL	4 Gazania Orange	B/B	1
G SELECT	TG Rudbeckia Goldsturm	F/P	45	4 ANNUAL	4" Gazania Orange	B/C	8
G SELECT	16 Rudbeckia Indian Summer	B/O	5	4 ANNUAL	4" Gazania Orange Flame	B/B	6
G SELECT	1G Salvia Ember's Wish	B/O	13	4 ANNUAL	4" Gazania Orange Flame	B/C	17
IG SELECT	1G Salvia Love And Wishes	B/C	12	4 ANNUAL	4" Gazania Red	B/B	8
IG SELECT	1G Salvia Vermillion Bluffs Plant Select®	F/P	10	4 ANNUAL	4" Gazania Red	B/C	23

Unsold 1-gal containers that go into 5-gal containers Plants thrown in a "pile"

Nitrogen applied every year to plant that will be sold 5 years from now



4. The number of ornamental species grown in nurseries in San Diego county is above 1,000

From: County of San Diego, Department of Agriculture, Weights and Measures

Exports San Diego Origin 🖃	Agave isthmensis	Aloe nobilis	Banksia hookeriana	Capsicum frutescens	Commiphora sp	Dieffenbachia seguine	Echinopsis hybrid	Euphorbia trigona	Gibbaeum dispar	Hesperaloe parviflora	Leucadendron galpinii
Acacia aneura	Agave lophantha	Aloe peglerae	Banksia integrifolia	Capsicum sp	Coniogramme s	p Dieffenbachia sp	Elaeocarpus sp	Euphorbia x martinii	Gomphrena hybrid	Hesperozygis hybrid	Leucadendron sp
Acacia cultriformis	Agave macracantha	Aloe polyphylla	Banksia praemorsa	Carissa macrocarpa	Copiapoa cinere	a Dioscorea sylvatica	Elegia capensis	Evolvulus glomeratus	Gonolobus cyclophylla	Hibiscus rosa-sinensis	Leucadendron spp
Acacia sp	Agave macroacantha	Aloe rubroviolacea	Banksia sp	Carissa sp	Copiapoa humil	is Dioscorea elephantipes	Epipremnum aureum	Farfugium japonicum	Graptopetalum paraguayense	Hibiscus sp	Leuchtenbergia principis
Acorus gramineus	Agave manfredii	Aloe sp	Bauhinia blakeana	Carpenteria californica	Copiapoa hypog	a Dischidia sp	Epipremnum sp	Fatshedera lizei	Graptopetalum sp	Hohenbergia correia-araujoi	Ligustrum japonicum
Adenia glauca	Agave mitis	Aloe speciosa	Bauhinia sp	Carya illinoinensis	Cordyline sp	Discocactus placentiforn	ni Eriobotrya japonica	Fatshedera sp	Graptosedum rosa	Hohenbergia sp	Ligustrum sp
Adenia spinosa	Agave montana	Aloe squarrosa	Beaucarnea recurvata	Catasetum pileatum	Coryphantha co	rr Dodonaea sp	Eriodictyon crassifolium	Fatsia japonica	Graptosedum sp	Hohenbergia vestita	Lithops aucampiae
Adenium arabicum	Agave ocahui	Aloe striata	Begonia sp	Catasetum sp	Coryphantha de	la Dorstenia foetida	Eriosyce chilensis	Fatsia sp	Graptosedum sp	Homalocladium platycladum	lithops sp
Adenium somalense	Agave ovatifolia	Aloe vanbalenii	Beta sp	Catasetum spitzii	Cotoneaster da	m Dorstenia gigas	Eriosyce crispa	Faucaria candida	Graptoveria sp	Howea sp	Livistona chinensis
Adiantum sp	Agave parrasana	Aloe variegata	Bignonia sp	Cattleya aurantiaca	Cotyledon ladis	m Dracaena deremensis	Eriosyce heinrichiana	Faucaria sp	Grevillea gaudichaudii	Hoya kerrii	Macadamia sp
Adromischus cristatus	Agave parryi	Aloe vera	Bignonia tweediana	Cattleya guttata	Cotyledon orbio	u Dracaena draco	Eriosyce villosa	Faucaria species	Grevillea hookeriana	Huernia thuretii	Maihueniopsis glomerata
Adromischus maculatus	Agave pelona	Aloe zebrina	Billbergia amoena	Cattleya kerrii	Cotyledon sp	Dracaena fragrans	Eruca sativa	Faucaria tigrina	Grevillea robusta	Hylocereus sp	Malus domestica
Adromischus sp	Agave potatorum	Aloinopsis malherbei	Billbergia elegans	Cattleya leopoldii	Cotyledon tome	n Dracaena marginata	Espostoa guentheri	Faucaria tuberculosa	Grevillea sp	Hylocereus undatus	Malus sp
Aechmea caudata	Agave pygmaea	Aloinopsis rubrolineata	Billbergia nutans	Cattleya mossiae	Crassula alstoni	i Dracaena sp	Espostoa lanata	Fenestraria aurantiaca	Grewia cafra	Hypericum sp	Mammillaria albicans
Aechmea nudicaulis	Agave salmiana	Aloinopsis schooneesii	Billbergia sp	Cattleya sp	Crassula arbore	sc Drimys lanceolata	Espostoa melanostele	Fenestraria sp	Guzmania sp	Ilex x altaclarensis	Mammillaria albilanata
Aechmea racinae	Agave scabra	Alpinia sp	Billbergia vittata	Cattleya walkeriana	Crassula arbore	sc Dudleya brittonii	Espostoa ritteri	Fenestria sp	Gymnocalycium andreae	Impatiens sp	Mammillaria backebergiana
Aechmea recurvata	Agave sebastiana	Alstroemeria sp	Bismarckia nobilis	Cedrus sp	Crassula argente	ea Dudleya hassei	Espostoa sp	Ferocactus chrysacanthus	Gymnocalycium baldianum	Ipomoea batatas	Mammillaria bocasana
Aechmea sp	Agave shawii	Amaranthus sp	Bombax sp	Celosia sp	Crassula capitel	la Dudleya sp	Espostoopsis dybowskii	Ferocactus emoryi	Gymnocalycium bruchii	Jacaranda mimosifolia	Mammillaria bombycina
Aechmea triangularis	Agave sp	Anacampseros sp	Bougainvillea sp	Cephalopentandra ecirrhosa	Crassula obliqua	a Dudleya sp	Eucalyptus gunnii	Ferocactus glaucescens	Gymnocalycium denudatum	Jovibarba sp	Mammillaria carretii
Aeonium haworthii	Agave tequilana	Anagallis arvensis	Bowiea volubilis	Cercidium sp	Crassula ovata	Duranta repens	Eucalyptus kruseana	Ferocactus gracilis	Gymnocalycium eurypleurum	Juncus sp	Mammillaria columbiana
Aeonium haworthii hybrids	Agave titanota	Ananas sp	Brachychiton populneus	Cereus hildmannianus	Crassula perfora	it Duranta sp	Eucalyptus nicholi	Ferocactus hamatacanthus	Gymnocalycium hibotan X hylocereus undatus	Juniperus californica	Mammillaria compressa
Aeonium sp	Agave utahensis	Angelonia sp	Brachychiton rupestris	Cereus trigonodendron	Crassula sp	Dyckia marnier-lapostol	e Eucalyptus parvifolia	Ferocactus histrix	Gymnocalycium mesopotamicum	Juniperus chinensis	Mammillaria crinita
Aeonium arboreum	Agave variegata	Anigozanthos flavidus	Brahea armata	Ceropegia sp	Crassula tetrago	n Dyckia sp	Eucalyptus polyanthemos	Ferocactus latispinus	Gymnocalycium mihanovichii	Juniperus sp	Mammillaria crinita subsp wildii
Aeonium sp	Agave victoriae-reginae	Anigozanthos sp	Brassica oleracea	Ceropegia woodii	Crassula ovata	Echeveria agavoides	Eucalyptus pulverulenta	Ferocactus macrodiscus	Gymnocalycium mostii	Kalanchoe beharensis	Mammillaria decipiens camptotricha
Aeschynanthus micranthus	Agave weberi	Anthurium sp	Brassica oleracea var sabellica	Chamaedorea sp	Cremnosedum	p Echeveria craigiana	Eucalyptus sp	Ferocactus pilosus	Gymnocalycium oenanthemum	Kalanchoe blossfeldiana	Mammillaria decipiens subsp camptotricha
Aeschynanthus sp	Agave xylonacantha	Apium sp	Bursera fagaroides	Chamaerops humilis	Cryptanthus sp	Echeveria elegans	Euonymus japonicus	Ferocactus schwarzii	Gymnocalycium pflanzii	Kalanchoe pumila	Mammillaria deherdtiana
Aeschynanthus spp	Ageratum houstonianum	Aralia sp	Bursera hindsiana	Chamaerops sp	Ctenanthe sp	Echeveria gibbiflora	Euphorbia abyssinica	Ferocactus wislizeni	Gymnocalycium saglionis	Kalanchoe sp	Mammillaria densispina
Agave albopilosa	Aglaonema sp	Archontophoenix cunninghamiana	Butia capitata	Chamelaucium uncinatum	Cucurbita sp	Echeveria laui	Euphorbia ammak	Ferocactus emoryi covillei	Gymnocalycium schickendantzii	Kalanchoe species	Mammillaria dixanthocentron
Agave americana	Ajuga reptans	Archontophoenix sp	Butia sp	Cheiridopsis denticulata	Cuphea hybrid	Echeveria lilacina	Euphorbia anoplia	Ficus benjamina	Gymnocalycium sp	Kalanchoe thyrsiflora	Mammillaria duwei
Agave applanata	Alluaudia procera	Arctotis x hybrida	Butiagrus nabonnandii	Chlorophytum comosum	Cuphea micrope	et Echeveria sp	Euphorbia bupleurifolia	Ficus carica	Gymnocalycium spegazzinii	Kalanchoe tomentosa	Mammillaria elongata
Agave attenuata	Alluaudia sp	Areca sp	Buxus micorphylla	Chlorophytum sp	Cuphea sp	Echeveria spp	Euphorbia cylindrifolia	Ficus elastica	Gymnocalycium stenopleurum	Kalanchoe Species	Mammillaria formosa
Agave bovicornuta	Aloe	Ariocarpus retusus	Buxus microphylla	Chondropetalum sp	Cupressus glauc	a Echeveria subrigida	Euphorbia fasciculata	Ficus lyrata	Gymnocalycium uebelmannianum	Kennedia nigricans	Mammillaria geminispina
Agave bracteosa	Aloe "Crosby's Prolific"	Artemisia californica	Buxus sp	Chorisia speciosa	Cupressus leyla	n Echinocactus grusonii	Euphorbia francoisii	Ficus nitida	Gymnocalycum Sp	Kleinia sp	Mammillaria glassii
Agave celsii	Aloe aculeata	Artemisia douglasiana	Cactaceae	Chrysanthemum sp	Cupressus macr	o Echinocactus platyacant	n Euphorbia ingens	Ficus palmeri	Haageocereus multangularis	Kunzea ambigua	Mammillaria glochidiata
Agave celsii x Agave ocahui	Aloe aristata	Asparagus asparagoides	Cactaceae sp	Cinnamomum camphora	Cupressus semp	e Echinocactus sp	Euphorbia lactea	Ficus pumila	Haageocereus pseudomelanostele	Lactuca sativa	Mammillaria guelzowiana
Agave colorata	Aloe bainesii	Asparagus plumosus	Cactus sp	Cipocereus bradei	Cupressus sp	Echinocereus adustus	Euphorbia leucodendron	Ficus repens	Hakonechloa macra	Laelia anceps	Mammillaria haageana
Agave ferdinandi-regis	Aloe barbadensis	Asparagus sp	Caesalpinia sp	Citrus aurantifolia	Cyathea cooper	i Echinocereus laui	Euphorbia loricata	Ficus sp	Hardenbergia violacea	Laelia milleri	Mammillaria hahniana
Agave ferox	Aloe brevifolia	Asplenium antiquum	Caladium bicolor	Citrus limon	Cycas revoluta	Echinocereus pulchellus	Euphorbia mammillaris	Fockea edulis	Haworthia cooperi	Laelia pumila	Mammillaria hamata
Agave filifera	Aloe capitata	Asplenium polyodon	Calandrinia caespitosa	Citrus paradisi	Cycnoches chlor	o Echinocereus reichenba	l Euphorbia meloformis	Fouquieria leonilae	Haworthia fasciata	Laelia purpurata	Mammillaria heyderi
Agave geminiflora	Aloe ciliaris	Asplenium sp	Calibanus hookerii	Citrus reticulata	Cyphostemma o	ir Echinocereus viridifloru	s Euphorbia milii	Fouquieria macdougalii	Haworthia magnifica	Laelia sincorana	Mammillaria huitzilopochtli
Agave gentryi	Aloe claviflora	Aster sp	Calibrachoa parviflora	Citrus sinensis	Cyphostemma o	u Echinopsis ancistrophora	a Euphorbia milii Hybrid sp	Fouquieria splendens	Haworthia retusa	Laelia tenebrosa	Mammillaria karwinskiana
Agave ghiesbreghtii	Aloe compressa	Astrophytum capricorne	Calibrachoa sp	Cleistocactus acanthurus	Dahlia sp	Echinopsis aurea	Euphorbia obesa	Fraxinus sp	Haworthia sp	Lagenaria siceraria	Mammillaria klissingiana
Agave gigantensis	Aloe conifera	Astrophytum myriostigma	Calibrachoa x hybrida	Cleistocactus samaipatanus	Dasylirion sp	Echinopsis cinnabarina	Euphorbia perrieri	Fuchsia x hibrida	Haworthia species	Lagerstroemia sp	Mammillaria longiflora
Agave gracilipes	Aloe deltoideodonta	Astrophytum ornatum	Callistemon sp	Cleistocactus strausii	Dasylirion whee	Echinopsis formosa	Euphorbia pubiglans	Furcraea sp	Haworthia venosa	Lamium maculatum	Mammillaria magnimamma
Agave guadalajarana	Aloe dichotoma	Austrocylindropuntia cylindrica	Callistemon viminalis	Cleistocactus winteri	Daucus carota	Echinopsis haematantha	Euphorbia pulcherrima	Gardenia jasminoides	Hechtia tillandsioides	Lantana sp	Mammillaria marksiana
Agave gypsophila	Aloe distans	Austrocylindropuntia cylindrical	Calocedrus decurrens	Clowesia rosea	Davallia sp	Echinopsis huascha	Euphorbia resinifera	Gasteria glomerata	Hedera canariensis	Lapidaria margaretae	Mammillaria matudae
Agave havardiana	Aloe ferox	Austrocylindropuntia sp	Calothamnus quadrifidus	Codiaeum sp	Delosperma coo	p Echinopsis pentlandii	Euphorbia sp	Gasteria sp	Hedera helix	Laurus nobilis	Mammillaria melanocentra
Agave horrida	Aloe fragilis	Austrocylindropuntia subulata	Calothamnus villosus	Coffea catura	Delosperma sp	Echinopsis saltensis	Euphorbia stenoclada	Gelsemium sempervirens	Hedera sp	Lepismium cruciforme	Mammillaria microhelia
Agave impressa	Aloe harlana	Bambusa oldhamii	Camellia sp	Coleocephalocereus aureus	Dianella sp	Echinopsis schieliana	Euphorbia tirucalli	Genista sp	Heliotropium arborescens	Leptospermum rotundifolium	Mammillaria muehlenpfordtii

Vammillaria nejapensis	Neoraimondia herzogiana	Parodia scopa	Polystichum sp	Rosa rugosa	Stapelia sp	Tillandsia capillaris	Tillandsia hamaleana	Tillandsia narthecioides	Tillandsia somnians	Vriesea sagasteguii
Mammillaria nivosa	Neoregelia bahiana	Parodia warasii	Portulaca sp	Rosa sp	Stenocactus multicostatus	Tillandsia capitata	Tillandsia hammeri	Tillandsia neglecta	Tillandsia sp	Vriesea sp
Vammillaria parkinsonii	Neoregelia kautskyi	Parodia werdermanniana	Portulacaria afra	Rosmarinus officinalis	Stenocactus ochoterenanus	Tillandsia caput-medusae	Tillandsia heteromorpha	Tillandsia nidus	Tillandsia stellifera	Washingtonia filifera
Vammillaria petterssonii	Neoregelia punctatissima	Parthenocissus tricuspidata	Portulacaria sp	Rosmarinus sp	Stenocactus phyllacanthus	Tillandsia carrilloi	Tillandsia hildae	Tillandsia novakii	Tillandsia straminea	Washingtonia robusta
Mammillaria plumosa	Neoregelia sp	Pelargonium sp	Portulacaria sp	Rubus sp	Stenocactus vaupelianus	Tillandsia castellanii	Tillandsia hondurensis	Tillandsia nuptialis	Tillandsia streptocarpa	Wigginsia pauciareolata
Mammillaria polythele polythele	Neoregelia zonata	Peperomia obtusifolia	Protea eximia	Rudbeckia sp	Stenocereus pruinosus	Tillandsia caulescens	Tillandsia humilis	Tillandsia occulta	Tillandsia streptophylla	Yucca elata
Mammillaria pringlei	Nephrolepis obliterata	Peperomia sp	Protea sp	Rumex acetosa	Stenocereus thurberi	Tillandsia cauligera	Tillandsia Hybrid	Tillandsia paleacea	Tillandsia stricta	Yucca elephantipes
Mammillaria rekoi	Nephrolepis sp	Persea americana	Prunus armeniaca	Russelia equisetiformis	Stephanotis floribunda	Tillandsia chapeuensis	Tillandsia incarnata	Tillandsia paraensis	Tillandsia sucrei	Yucca filamentosa
Mammillaria rhodantha	Nerium oleander	Petunia axilaris	Prunus caroliniana	Sabal palmetto	Stetsonia coryne	Tillandsia chiapensis	Tillandsia intermedia	Tillandsia pardoi	Tillandsia tectorum	Yucca gloriosa
Mammillaria schiedeana	Nerium sp	Petunia hybrida	Prunus domestica	Sabal sp	Stetsonia sp	Tillandsia chusgonensis	Tillandsia ionantha	Tillandsia paucifolia	Tillandsia tenuifolia	Yucca linearifolia
Mammillaria schwarzii	Nolina recurvata	Petunia sp	Prunus persica	Salvia apiana	Strelitzia nicolai	Tillandsia cocoensis	Tillandsia ixioides	Tillandsia peiranoi	Tillandsia tomekii	Yucca pallida
Vammillaria scrippsiana	Nolina sp	Petunia x hybrida	Prunus sp	Salvia argentea	Strelitzia reginae	Tillandsia coinaensis	Tillandsia jalisco-monticola	Tillandsia plagiotropica	Tillandsia tricholepis	Yucca rostrata
Mammillaria sempervivi	Olea europaea	Philodendron cordatum	Psidium sp	Salvia greggii	Strelitzia sp	Tillandsia compressa	Tillandsia jonesii	Tillandsia plumosa	Tillandsia tricolor	Yucca schottii
Mammillaria senilis	Olea sp	Philodendron erubescens	Pteris albolineata	Salvia officinalis	Stromanthe sp	Tillandsia concolor	Tillandsia jucunda	Tillandsia pohliana	Tillandsia umbellata	Yucca sp
Mammillaria sp	Opuntia chlorotica	Philodendron ornatum	Punica granatum	Salvia rosmarinus	Sutera hybrid	Tillandsia confertiflora	Tillandsia juncea	Tillandsia polita	Tillandsia usneoides	Zamia floridana
Mammillaria spinosissima	Opuntia engelmannii	Philodendron selloum	Punica sp	Sanseveria Sp	Syagrus romanzoffiana	Tillandsia confinis	Tillandsia juncifolia	Tillandsia polystachia	Tillandsia velickiana	Zamia furfuracea
Mammillaria spinosissima pilcayensis	Opuntia linguiformis	Philodendron sp	Pygmaeocereus bylesianus	Sansevieria laurentii	Syagrus sp	Tillandsia copalaensis	Tillandsia kautskyi	Tillandsia polzii	Tillandsia velutina	Zamioculcas sp
Mammillaria spinosissima subsp pilcayensis	Opuntia microdasys	Philodendron spiritus-sancti	Pyrus calleryana	Sansevieria sp	Syngonium sp	Tillandsia copanensis	Tillandsia kegeliana	Tillandsia pretiosa	Tillandsia vernicosa	Zamioculcas zamiifolia
Mammillaria standleyi	Opuntia sp	Phlebodium aureum	Pyrus kawakami	Sansevieria trifasciata	Tacitus bellus	Tillandsia crocata	Tillandsia kirschnekii	Tillandsia propagulifera	Tillandsia vicentina	Zauschneria sp
Mammillaria supertexta	Opuntia subulata	Phlebodium sp	Pyrus sp	Sansevieria zeylancia	Tagetes erecta	Tillandsia cyanea	Tillandsia klausii	Tillandsia pruinosa	Tillandsia werdermannii	
Mammillaria vetula	Oreocereus celsianus	Phlox divaricata	Quercus sp	Sansevieria spp	Tagetes sp	Tillandsia diaguitensis	Tillandsia koehresiana	Tillandsia pucaraensis	Tillandsia xiphioides	
Mammillaria zeilmanniana	Oreocereus sp	Phoenix canariensis	Quercus suber	Sarcocaulon herrei	Tecoma sp	Tillandsia didisticha	Tillandsia krukoffiana	Tillandsia pueblensis	Tillandsia zacapanensis	
Mammilloydia candida	Oreocereus trollii	Phoenix dactylifera	Quercus virginiana	Schefflera arboricola	Thelocactus bicolor	Tillandsia disticha	Tillandsia kurt-horstii	Tillandsia punctulata	Tillandsia houston	
Vangifera sp	Othonna sp	Phoenix roebelenii	Quesnelia sp	Schefflera sp	Thelocactus macdowellii	Tillandsia dorotheae	Tillandsia kuzmae	Tillandsia purpurea	Tipuana tipu	
Varanta sp	Pachira aquatica	Photinia fraseri	Quesnelia testudo	Schinus molle	Tillandsia achyrostachys	Tillandsia dura	Tillandsia latifolia	Tillandsia raackii	Titanopsis calcarea	
Matucana havnei	Pachira sp	Photinia freseri	Racinaea crispa	Schinus sp	Tillandsia acostae	Tillandsia duratii	Tillandsia leiboldiana	Tillandsia rauschii	Trachelospermum jasminoides	
, Melaleuca alternifolia	Pachycereus marginatus	Phyllostachys sp	Racinaea pugiformis	Scoparia dulcis	Tillandsia acosta-solisii	Tillandsia edithae	Tillandsia leonamiana	Tillandsia rectangula	Trachelospermum sp	
Aelaleuca armillaris	Pachycereus pringlei	Pilosocereus chrysacanthus	Racinaea sp	Sedeveria sp	Tillandsia aeranthos	Tillandsia edithiae	Tillandsia leucolepis	Tillandsia recurvata	Trachycarpus fortunei	
Melaleuca diosmifolia	Pachyphytum sp	Pilosocereus gounellei	Racinaea spiculosa	Sedum morganianum	Tillandsia albertiana	Tillandsia ehlersiana	Tillandsia lindenii	Tillandsia recurvifolia	Trachycarpus sp	
Melaleuca fulgens	Pachyphytum species	Pilosocereus leucocephalus	Racinaea tillii	Sedum nussbaumerianum	Tillandsia albida	Tillandsia espinosae	Tillandsia loliacea	Tillandsia reducta	Tradescantia crassula	
Melaleuca sp	Pachypodium brevicaule	Pilosocereus magnificus	Radermachera sinica	Sedum sp	Tillandsia alvareziae	Tillandsia exserta	Tillandsia lorentziana	Tillandsia reichenbachii	Tylecodon wallichii	
velocactus azureus	Pachypodium densiflorum	Pilosocereus pachycladus	Ranunculus acaulis	Sedum x rubrotinctum	Tillandsia ampla	Tillandsia extensa	Tillandsia lotteae	Tillandsia retrorsa	Uebelmannia pectinifera	
Aelocactus curvispinus	Pachypodium geavi	Pilosocereus pachycladus pachycladus	Ranunculus sp	Selaginella kraussiana	Tillandsia andreana	Tillandsia fasciculata	Tillandsia macbrideana	Tillandsia rodrigueziana	Ulmus parvifolia	
Melocactus matanzanus	Pachypodium lamerei	Pilosocereus piauhyensis	Ranunculus spp	Sempervivum arachnoideum	Tillandsia araujei	Tillandsia festucoides	Tillandsia magnispica	Tillandsia roezlii	Vaccinium corymbosum	
Melocactus violaceus	Pachypodium namaguanum	Pilosocereus royenii	Rebutia arenacea	Sempervivum sp	Tillandsia argentina	Tillandsia filifolia	Tillandsia magnusiana	Tillandsia roland-gosselini	Verbena hybrida	
Aelocactus azureus	Pachypodium sp	Pinus pinea	Rebutia canigueralii	Senecio herreianus	Tillandsia baileyi	Tillandsia flabellata	Tillandsia mallemontii	Tillandsia roland-gosselinii	Verbena sp	
Aicranthocereus dolichospermaticus	Pachyveria haagei	Pistacia lentiscus	Rebutia fiebrigii	Senecio peregrinus	Tillandsia balbisiana	Tillandsia flagellata	Tillandsia marconae	Tillandsia roseoscapa	Verbena xhybrida	
Aicranthocereus estevesii	Pachyveria sp	Pittosporum sp	Rebutia heliosa	Senecio radicans	Tillandsia bandensis	Tillandsia flavobracteata	Tillandsia matudae	Tillandsia rothii	Vigna sp	
Aicrosorum sp	Pandorea jasminoides	Pittosporum tobira	Rebutia mentosa	Senecio rowleyanus	Tillandsia barclayana	Tillandsia flexuosa	Tillandsia mauryana	Tillandsia rotundata	Vinca sp	
Monstera deliciosa	Parodia buiningii	Platanus racemosa	Rebutia minuscula	Senecio scaposus	Tillandsia barthlottii	Tillandsia floribunda	Tillandsia mazatlanensis	Tillandsia rubroviolacea	Viola cornuta	
Monstera sp	Parodia chrysacanthion	Platanus sp	Rebutia neocumingii	Senecio sp	Tillandsia bergeri	Tillandsia fragrans	Tillandsia melanocrater	Tillandsia scaligera	Viola wittrockiana	
Aorus rubra	Parodia crassigibba	Platycerium sp	Rebutia senilis	Senecio spathulatus	Tillandsia beutelspacheri	Tillandsia fuchsii	Tillandsia mereliana	Tillandsia scaposa	Vriesea appenii	
/lusa sp	Parodia erubescens	Plectranthus sp	Rhaphiolepis sp	Senecio species	Tillandsia brachycaulos	Tillandsia funckiana	Tillandsia mima	Tillandsia schatzlii	Vriesea botafogensis	
Ausa zebrina	Parodia haselbergii	Pleiospilos nelii	Rhapidophyllum hystrix	Senecio sp	Tillandsia brenneri	Tillandsia gardneri	Tillandsia minasgeraisensis	Tillandsia schiedeana	Vriesea chontalensis	
Ayoporum parvifolium	Parodia herteri	Pleiospilos sp	Rhipsalis burchellii	Solanum bicolor	Tillandsia bryoides	Tillandsia geminiflora	Tillandsia mitlaensis	Tillandsia schusteri	Vriesea corcovadensis	
Ayrtus sp	Parodia leninghausii	Plumbago sp	Rhipsalis teres	Solanum lycopersicum	Tillandsia buchlohii	Tillandsia gilliesii	Tillandsia mollis	Tillandsia secunda	Vriesea espinosae	
Nandina domestica	Parodia magnifica	Plumeria rubra	Rhoeo sp	Solanum melongena	Tillandsia bulbosa	Tillandsia glabrior	Tillandsia mooreana	Tillandsia seleriana	Vriesea guttata	
Nematanthus gregarius	Parodia mammulosa	Plumeria sp	Rhus sp	Solanum sp	Tillandsia butzii	Tillandsia graomogolensis	Tillandsia multicaulis	Tillandsia setacea	Vriesea hitchcockiana	
Nematanthus hybird	Parodia schumanniana	Polaskia chichipe	Rosa banksiae	Solenostemon sp	Tillandsia cacticola	Tillandsia grossispicata	Tillandsia myriantha	Tillandsia simulata	Vriesea philippocoburgii	
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Nursery and Floriculture is a niche industry, not a commodity industry

Appendix: Acreage of crops grown in the Central Valley (San Joaquin Valley and Sacramento Valley combined).

The list is based on the USDA Agricultural Census and Survey 2012, which is currently the most recent year with a detailed list of crops (available online at: https://quickstats.nass.usda.gov/).

The percentages of each crop as well as the cumulative % are estimates of the proportion of the total acreage in the Central Valley. Non-irrigated acreage may be included for some field crops. Rice was excluded from the list. The crops included in this report are written in **bold** typeface.

List of Central Valley crops

#	Commodity	Acreage	% of total	Cumulative %
1	Almonds	736719	13.15	13.15
2	Grapes	586993	10.47	23.62
3	Wheat, Winter & Spring, excl. Durum	552759	9.86	33.48
4	Hay, Alfalfa	498767	8.90	42.38
5	Corn, Silage	464365	8.29	50.67
6	Cotton	350765	6.26	56.93
7	Processing Tomatoes	274712	4.90	61.83
8	Walnuts	227729	4.06	65.90
9	Hay, Small Grain	226858	4.05	69.94
10	Corn, Grain	195113	3.48	73.43
11	Pistachios	175541	3.13	76.56
12	Haylage, excl. Alfalfa	169010	3.02	79.57
13	Oranges	157350	2.81	82.38
14	Haylage, Alfalfa	72795	1.30	83.68
15	Barley	65500	1.17	84.85
16	Hay, excl. Small Grain & Alfalfa	52435	0.94	85.79
17	Sunflower	46914	0.84	86.62
18	Peaches	44641	0.80	87.42
19	Wheat, Durum	42327	0.76	88.17
20	Sorghum, Silage	39252	0.70	88.88
21	Prunes	36480	0.65	89.53
22	Beans, Dry, excl. Lima	35715	0.64	90.16
23	Carrots	34280	0.61	90.78
24	Olives	32517	0.58	91.36
25	Pomegranates	28852	0.51	91.87
26	Tomatoes, Fresh Market	28671	0.51	92.38

Central Valley crops, for comparison

					#	Comn
entr	ral Valley crops (continued)				59	Veget
#	Commodity	Acreage	% of total	Cumulative %	60	Blueb
27	Cherries	28541	0.51	92.89	61	Kiwifr
28	Potatoes	25799	0.46	93.35	62	Grape
29	Melons, Cantaloupe	25592	0.46	93.81	63	Persir
30	Onions	21927	0.39	94.20	64	Onior
31	Safflower	21723	0.39	94.59	65	Plum
32	Oats	21051	0.38	94.96	66	Lettu
33	Tangerines	20386	0.36	95.33	67	Beans
34	Sweet Potatoes	17506	0.31	95.64	68	Pecar
35	Garlic	17496	0.31	95.95	69	Tange
36	Plums	17131	0.31	96.26	70	Lettu
37	Nectarines	16803	0.30	96.56	71	Spina
38	Sweet Corn	14822	0.26	96.82	72	Eggpl
39	Grasses & Legumes Totals, Seeds *	13683			73	Cabba
40	Beans, Dry Lima	12912	0.23	97.05	74	Straw
41	Sorghum, Grain	12514	0.22	97.27	75	Peppe
42	Triticale	11431	0.20	97.48	76	Daiko
43	Melons, Watermelon	9301	0.17	97.64	77	Beets
44	Asparagus	7215	0.13	97.77	78	Bruss
45	Hay, Wild **	7171			79	Tree
46	Cucumbers	6908	0.12	97.90	80	Parsle
47	Lemons	6882	0.12	98.02	81	Wild
48	Apricots	6850	0.12	98.14	82	Avoca
49	Peppers, Bell	6365	0.11	98.26	83	Radis
50	Apples	5990	0.11	98.36	84	Chest
51	Lettuce, Head	5920	0.11	98.47	85	Black
52	Pears	5616	0.10	98.57	86	Green
53	Melons, Honeydew	5458	0.10	98.67	87	Peas.
54	Broccoli	5121	0.09	98.76	88	Berrie
55	Figs	4068	0.07	98.83	89	Peas
56	Pumpkins	4039	0.07	98.90	90	Greet
57	Squash	4014	0.07	98.97	91	Herbs
58	Beans, Snap	3564	0.06	99.04		

Central Valley crops (continued)

#	Commodity	Acreage	% of total	Cumulative %
59	Vegetables, Other	3381	0.06	99.10
60	Blueberries	3121	0.06	99.15
61	Kiwifruit	2721	0.05	99.20
62	Grapefruit	2695	0.05	99.25
63	Persimmons	2139	0.04	99.29
64	Onions, Green	1869	0.03	99.32
65	Plum-Apricot Hybrids	1832	0.03	99.35
66	Lettuce, Romaine	1808	0.03	99.39
67	Beans, Green, Lima	1655	0.03	99.42
68	Pecans	1298	0.02	99.44
69	Tangelos	1221	0.02	99.46
70	Lettuce, Leaf	1086	0.02	99.48
71	Spinach	975	0.02	99.50
72	Eggplant	954	0.02	99.51
73	Cabbage	807	0.01	99.53
74	Strawberries	787	0.01	99.54
75	Peppers, Chile	687	0.01	99.56
76	Daikon	594	0.01	99.57
77	Beets	521	0.01	99.57
78	Brussels Sprouts	481	0.01	99.58
79	Tree Nuts, Other	364	0.01	99.59
80	Parsley	329	0.01	99.60
81	Wild Rice	263	<0.01	99.60
82	Avocados	253	<0.01	99.61
83	Radishes	243	<0.01	99.61
84	Chestnuts	131	<0.01	99.61
85	Blackberries	103	<0.01	99.61
86	Greens, Kale	98	<0.01	99.62
87	Peas, Chinese	90	<0.01	99.62
88	Berries, Other	89	<0.01	99.62
89	Peas, Green, excl. Southern	83	<0.01	99.62
90	Greens, Mustard	60	<0.01	99.62
91	Herbs	54	< 0.01	99.62

53

<0.01

99.62

Central Valley crops (continued)

#	Commodity	Acreage	% of total	Cumulative %
93	Peas, Green, Southern	44	<0.01	99.62
94	Turnips	43	<0.01	99.62
95	Artichokes	36	<0.01	99.63
96	Cauliflower	32	<0.01	99.63
97	Greens, Turnip	22	<0.01	99.63
98	Raspberries	22	<0.01	99.63
99	Peanuts	20	<0.01	99.63
100	Boysenberries	19	<0.01	99.63
101	Greens, Collard	13	<0.01	99.63
102	Celery	6	<0.01	99.63
103	Watercress	6	<0.01	99.63
104	Mint	5	<0.01	99.63
105	Horseradish	3	<0.01	99.63
106	Rhubarb	2	<0.01	99.63

* Not included, because category includes many different species

** Not included, because not likely to be irrigated

From: Nitrogen concentrations in harvested plant parts - A literature overview, Dr. Daniel Geisseler, 2021



5. Variety of container sizes

1.1.3.1 Container class volume ranges

Container class specification	Container v	volume range	Box size equivalent
	Cubic Inches Min - Max	Cubic Centimeters Min - Max	
#SP1	6 ½ - 8	106 - 131	
#SP2	13 - 15	213 - 246	
#SP3	20 - 30	328 - 492	
#SP4	51 - 63	836 - 1033	
#SP5	93 - 136	1524 - 2229	
#1	152 - 251	2492 - 4115	
#2	320 - 474	5246 - 7770	
#3	628 - 742	10285 - 12164	
#5	785 - 1242	12860 - 20360	
#7	1337 - 1790	21913 - 29343	
#10	2080 - 2646	34090 - 43376	
#15	2768 - 3696	45376 - 60589	
#20	4520 - 5152	74096 - 84457	20-inch box
#25	5775 - 6861	94669 - 112472	24-inch box
#45	9356 - 11,434	153317 - 187377	36-inch box
#65	13514 - 16517	221456 - 246051	42-inch box
#95/100	20790 - 25410	340686 - 416394	48-inch box













Combos



New varieties and hybrids released yearly



6. High Volatilization of N in containerized production

~6%

From: Nitrogen Fate in Nursery Production, Pitton and Oki 2020

What we found

Use analytical results to estimate N amounts:

- In plant shoots ~5%
- Remaining in substrate ~55%
- In runoff water
- Leached into bed soils ~4%
- Lost from denitrification ~30%
 N₂O-N ~1.5%



Main fertilization techniques are liquid feed and controlled release fertilizer





There are practices to protect water quality...

Greenhouse and Nursery Management Practices To Protect Water Quality

TECHNICAL EDITOR



Agriculture and Natural Resources



...and there is knowledge to protect water quality...



Thank you! Gerardo Spinelli gspinelli@ucdavis.edu

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Please complete the evaluation! It takes a minute!