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Seed Germination
and Purity
Analysis—2004

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SEED GERMINATION AND PURITY ANALYSIS 2004

Sharon M. Douglas and Mary K. Inman

Official samples of 350 vegetable, 15 lawn, and 4 crop seed were collected by inspectors from the Bureau of Regulation and Inspection of the Connecticut Department of Agriculture for testing in 2004. As the official seed testing laboratory, The Connecticut Agricultural Experiment Station performed germination and purity analyses for compliance with the Connecticut Seed Law Regulations and the Federal Seed Act.

Table 1 shows the results of germination tests for individual vegetable seed samples from 12 companies. Results are presented by plant type, variety, germination found, germination standard, and compliance with the standard. Germination standards are set by the Federal Seed Act. The categories for label compliance are: 1) seeds meet label claims for germination and 2) seeds do not meet label claims for germination within allowable tolerance. All tests were replicated twice. In addition, seedlings must also appear "normal", i.e., they have to be free from decay, have well-developed primary root systems, have well-developed and intact hypocotyls and/or epicotyls, and have healthy cotyledons. Of the 350 vegetable seed samples tested, four did not meet their label claims for germination but were not retested because of insufficient numbers of seeds. Seed samples were also examined for prohibited noxious weed seeds. No vegetable samples contained weed contaminants.

The total number of germination claims and the percentage of claims that met or failed label claims are summarized for each vegetable seed company in Table 2. Table 3 summarizes the total number of samples tested and the average germination for each type of vegetable.

Table 4 shows the results of purity and germination tests for individual lawn grass seed samples. These are presented by company, brand name and/or seed type or variety mixture. The categories for both purity and germination are as previously described for vegetable seeds. Lawn seed samples that were labeled with several varieties within a species or with several species within a genus were separated by genus. Purity and germination results are therefore reported as the sum for that genus. The label claim is met as long as this sum equals or exceeds the sum of the individual components for a genus listed on the label. Four of the 15 lawn seed samples tested met label claims for both purity and germination. Nine samples did not meet claims for purity but passed label claims for germination. One sample did not meet claims for germination but passed label claims for purity. One sample failed label claims for both purity and germination.

Table 5 shows the results of purity and germination tests for crop seed samples. One of the four samples met label claims for germination and purity. One sample failed label claims for both purity and germination and two samples did not meet label claims for purity but passed claims for germination. In addition to germination and purity tests, samples were also examined for prohibited noxious weeds. No noxious weeds were found in any of the samples.

Analyses were performed by Mary K. Inman and Dr. Sharon M. Douglas. Samples were collected by Alton A. Blodgett, Seed Control Official and John Schneider. The Seed Law is administered by the Seed Control Official for the Commissioner of the Department of Agriculture.

Sharon M. Douglas

Table 1. Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Artichoke	Green Globe	Comstock-Ferre and Company	60	74
Asparagus	Mary Washington	Comstock-Ferre and Company	70	89
Bean	Blue Lake Bush	Charles C. Hart Seed Company	70	82
Bean	Brittle Wax	Charles C. Hart Seed Company	70	93
Bean	Bush Blue Lake	Comstock-Ferre and Company	70	79
Bean	Derby	Comstock-Ferre and Company	70	70+1H
Bean	Cherokee Wax	Comstock-Ferre and Company	70	98
Bean	Romano Pole	New England Seed Company	70	83+1H
Bean	Kentucky Wonder Wax	New England Seed Company	70	96
Bean	Symphony Blue Lake Bush	Wal-Mart/Ferry-Morse Seed Company	70	84
Bean	Bountiful Stringless Snap Bush	Seeds of Change	70	96
Bean	Blue Lake Stringless FM1	Livingston Seed Company	70	79+12H
Bean	Burpee Stringless Bush	Livingston Seed Company	70	98
Bean	Golden Butterwax	Agway, Inc.	70	97
Bean	Kentucky Wonder 191 Pole	Agway, Inc.	70	88+1H
Bean	Blue Lake 274 Bush	Martha Stewart Living Omnimedia, Inc.	70	83
Bean	Kentucky Wonder Brown Pole	Martha Stewart Living Omnimedia, Inc.	70	95+1H
Bean	Contender	NK Lawn and Garden Company	70	84
Bean	Blue Lake 274	Burpee Organic/W. Atlee Burpee and Co.	70	64
Bean	Burpee's Stringless Green Pod	W. Atlee Burpee and Company	70	91+4H
Bean	Brittle Wax	W. Atlee Burpee and Company	70	88
Bean, lima	Fordhook 242 Bush	New England Seed Company	70	71
Bean, lima	Henderson Bush	Wal-mart/Ferry-Morse Seed Company	70	92
Bean, lima	Burpee's Improved Bush	W. Atlee Burpee and Company	70	34*
Beet	Bull's Blood	Comstock-Ferre and Company	65	94
Beet	Cylindra	New England Seed Company	65	91
Beet	Tall Top Early Wonder	Wal-Mart/Ferry-Morse Seed Company	65	89
Beet	Lutz Salad Leaf	Seeds of Change	65	93
Beet	Detroit Dark Red	Page Seed Company/Liberty Garden	65	89
Beet	Detroit Dark Red	Livingston Seed Company	65	92
Beet	Red Ace	Agway, Inc.	65	85
Beet	Chiogga	Martha Stewart Living Omnimedia, Inc.	65	89
Beet	Ruby Queen	NK Lawn and Garden Company	65	89
Beet	Detroit Dark Red	W. Atlee Burpee and Company	65	77
Broccoli	Calabrese	Charles C. Hart Seed Company	75	75
Broccoli	Waltham	Comstock-Ferre and Company	75	86
Broccoli	Early Green	Seeds of Change	75	98
Broccoli	Calabrese Green Sprouting	Page Seed Company/Liberty Garden	75	96
Broccoli	Calabrese Green Sprouting	Livingston Seed Company	75	96

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Broccoli	Southern Comet	Agway, Inc.	75	84
Broccoli	Green Goliath	Martha Stewart Living Omnimedia, Inc.	75	76
Broccoli	Waltham 29	NK Lawn and Garden Company	75	80
Broccoli	Calabrese Green Sprouting	Burpee Organic/W. Atlee Burpee and Co.	75	98
Broccoli	Green Goliath	W. Atlee Burpee and Company	75	83
Broccoli raab	Early Fall	Comstock-Ferre and Company	75	95
Broccoli raab	Early Pugliese	New England Seed Company	75	94
Brussels sprouts	Long Island Improved	Charles C. Hart Seed Company	70	87
Brussels sprouts	Long Island Improved	Comstock-Ferre and Company	70	96
Brussels sprouts	Jade Cross	New England Seed Company	70	94
Brussels sprouts	Catskill	Morse/Ferry-Morse Seed Company	70	95
Brussels sprouts	Catskill	Agway, Inc.	70	78
Brussels sprouts	Long Island Improved	Martha Stewart Living Omnimedia, Inc.	70	91
Cabbage	Red Acre	Charles C. Hart Seed Company	75	74
Cabbage	Golden Acre	Charles C. Hart Seed Company	75	93
Cabbage	Danish Ballhead	Comstock-Ferre and Company	75	83
Cabbage	Chieftain Savoy	New England Seed Company	75	69
Cabbage	Ferry's Round Dutch	Wal-Mart/Ferry-Morse Seed Company	75	91
Cabbage	King's Ransom	Agway, Inc.	75	95
Cabbage	Earliana	Martha Stewart Living Omnimedia, Inc.	75	85
Cantaloupe	Delicious 51	Charles C. Hart Seed Company	75	83
Cantaloupe	Alaska	Comstock-Ferre and Company	75	97
Cantaloupe	Delicious 51	New England Seed Company	75	90
Cantaloupe	Sierra Gold	Wal-Mart/Ferry-Morse Seed Company	75	91
Cantaloupe	Honey Rock	Livingston Seed Company	75	94
Cantaloupe	Imperial 45	NK Lawn and Garden Company	75	96
Carrot	Red Core Chantenay	Charles C. Hart Seed Company	55	85
Carrot	Scarlet Nantes	Charles C. Hart Seed Company	55	86
Carrot	Gold Pak	Comstock-Ferre and Company	55	90
Carrot	Danvers Half Long	New England Seed Company	55	75
Carrot	Red Core Chantenay	Wal-Mart/Ferry-Morse Seed Company	55	92
Carrot	St. Valery	Seeds of Change	55	85
Carrot	Nantes Coreless	Page Seed Company/Liberty Garden	55	89
Carrot	Danvers Half Long	Livingston Seed Company	55	87
Carrot	Royal Chantenay	Agway, Inc.	55	84
Carrot	Little Fingers	Martha Stewart Living Omnimedia, Inc.	55	80
Carrot	Tendersweet	NK Lawn and Garden Company	55	88
Carrot	Short'n Sweet	W. Atlee Burpee and Company	55	88

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Cauliflower	Self Blanching	Charles C. Hart Seed Company	75	85
Cauliflower	Violetta Italia	Comstock-Ferre and Company	75	99
Cauliflower	Broccoverde	Comstock-Ferre and Company	75	97
Cauliflower	Early Snowball	New England Seed Company	75	85
Cauliflower	Early Snowball	Page Seed Company/Liberty Garden	75	85
Cauliflower	Snow Crown	Agway, Inc.	75	97
Celeriac	Giant Smooth Prague	Comstock-Ferre and Company	55	56
Celery	Giant Pascal	Charles C. Hart Seed Company	55	69
Celery	Utah	New England Seed Company	55	84
Chicory	Italian Dandelion	Charles C. Hart Seed Company	65	84
Chicory	Witloof	Comstock-Ferre and Company	65	90
Chicory	Cicoria Catalogna	New England Seed Company	65	83
Chinese cabbage	Michihili	Comstock-Ferre and Company	75	92
Chinese cabbage		New England Seed Company	75	91
Chinese cabbage	Jade Pagoda	Agway, Inc.	75	97
Chinese cabbage	Oriental Express	Martha Stewart Living Omnimedia, Inc.	75	83
Collards	Georgia Green	Charles C. Hart Seed Company	80	92
Collards	Georgia	Comstock-Ferre and Company	80	96
Collards	Georgia	New England Seed Company	80	95
Collards	Georgia Southern	Wal-Mart/Ferry-Morse Seed Company	80	97
Collards	Vates	Agway, Inc.	80	95
Collards	Georgia	Martha Stewart Living Omnimedia, Inc.	80	94
Corn	Golden Bantam	Charles C. Hart Seed Company	75	98
Corn	Seneca Chief	Charles C. Hart Seed Company	75	99
Corn	Golden Beauty	Charles C. Hart Seed Company	75	99
Corn	Butter and Sugar	Comstock-Ferre and Company	75	98
Corn	Silver Queen	Comstock-Ferre and Company	75	99
Corn	Early Sunglow	New England Seed Company	75	100
Corn	Silver Queen	New England Seed Company	75	97
Corn	Silver Bullet	Wal-Mart/Ferry-Morse Seed Company	75	97
Corn	Sweet Riser	Wal-Mart/Ferry-Morse Seed Company	75	92
Corn	True Gold	Seeds of Change	75	95
Corn	Kandy Korn	Livingston Seed Company	75	99
Corn	Silver Queen	Livingston Seed Company	75	99
Corn	Ecstase II	Agway, Inc.	75	96
Corn	Table Treat	Agway, Inc.	75	91
Corn	Breeder's Bicolor	Martha Stewart Living Omnimedia, Inc.	75	94
Corn	Silver Choice	Martha Stewart Living Omnimedia, Inc.	75	81
Corn	Spring Treat	NK Lawn and Garden Company	75	98

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Corn	Sugar Dots	NK Lawn and Garden Company	75	92
Corn	Honey and Cream	W. Atlee Burpee and Company	75	99
Cornsalad	Mache	Martha Stewart Living Omnimedia, Inc.	70	80
Cowpea	Pinkeye Purple Hull	Wal-Mart/Ferry-Morse Seed Company	75	90+1 H
Cress	Upland	Charles C. Hart Seed Company	60	56
Cucumber	Bush Crop	Charles C. Hart Seed Company	80	90
Cucumber	SMR Wisconsin Pickling	Charles C. Hart Seed Company	80	100
Cucumber	White Wonder	Comstock-Ferre and Company	80	94
Cucumber	Straight 8	Comstock-Ferre and Company	80	96
Cucumber	Early Surecrop	New England Seed Company	80	90
Cucumber	Boston Pickling	New England Seed Company	80	97
Cucumber	Cross Country	Wal-Mart/Ferry-Morse Seed Company	80	89
Cucumber	Poinsett 76	Wal-Mart/Ferry-Morse Seed Company	80	98
Cucumber	Northern Pickling	Seeds of Change	80	98
Cucumber	Muncher	Livingston Seed Company	80	95
Cucumber	Marketmore 76	Agway, Inc.	80	98
Cucumber	Straight Eight	Martha Stewart Living Omnimedia, Inc.	80	100
Cucumber	Armenian	NK Lawn and Garden Company	80	94
Cucumber	Double Feature	W. Atlee Burpee and Company	80	94
Dill	Bouquet	Charles C. Hart Seed Company	60	90
Dill	Bouquet	Wal-Mart/Ferry-Morse Seed Company	60	76
Dill	Dukat	Agway, Inc.	60	82
Dill	Long Island Mammoth	NK Lawn and Garden Company	60	84
Eggplant	Black Beauty	Comstock-Ferre and Company	60	55
Eggplant	Black Beauty	New England Seed Company	60	85
Eggplant	Black Beauty	Wal-Mart/Ferry-Morse Seed Company	60	86
Eggplant	Black Beauty	Page Seed Company/Liberty Garden	60	75
Eggplant	High Bush Select	Agway, Inc.	60	19*
Eggplant	Rosa Bianco	Martha Stewart Living Omnimedia, Inc.	60	68
Eggplant	Bambino	W. Atlee Burpee and Company	60	78
Endive	Green Curled	Charles C. Hart Seed Company	70	97
Endive	Fin de Louvier	Comstock-Ferre and Company	70	87
Endive	Batavian Full Heart	New England Seed Company	70	80
Endive	Batavian	Page Seed Company/Liberty Garden	70	65
Endive	Green Ruffle	Agway, Inc.	70	96
Endive	Green Curled	Martha Stewart Living Omnimedia, Inc.	70	97
Kale	Vates Blue Curled	Charles C. Hart Seed Company	75	87

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Kale	Vates Dwarf Blue Curled	Comstock-Ferre and Company	75	93
Kale	Vates Dwarf Blue Curled	New England Seed Company	75	99
Kale	Vates Dwarf Blue Curled	Wal-Mart/Ferry-Morse Seed Company	75	93
Kale	Blue Scotch	Agway, Inc.	75	97
Kale	Red Russian	Martha Stewart Living Omnimedia, Inc.	75	99
Kohlrabi	Early Purple Vienna	Comstock-Ferre and Company	75	97
Kohlrabi	Winter Hybrid	New England Seed Company	75	95
Kohlrabi	Early White Vienna	Wal-Mart/Ferry-Morse Seed Company	75	89
Kohlrabi	White Vienna	Agway, Inc.	75	95
Kohlrabi	Early White Vienna	Martha Stewart Living Omnimedia, Inc.	75	94
Leek	American Flag	Charles C. Hart Seed Company	60	90
Leek	American Flag	Comstock-Ferre and Company	60	94
Leek	American Broad Flag	New England Seed Company	60	95
Leek	American Flag	Wal-mart/Ferry-Morse Seed Company	60	86
Leek	Carina	Agway, Inc.	60	83
Leek	Broad London	Martha Stewart Living Omnimedia, Inc.	60	92
Lettuce	Iceberg	Charles C. Hart Seed Company	80	88
Lettuce	Buttercrunch	Charles C. Hart Seed Company	80	98
Lettuce	Red Sails	Comstock-Ferre and Company	80	90
Lettuce	Great Lakes 659	Comstock-Ferre and Company	80	94
Lettuce	Great Lakes	New England Seed Company	80	92
Lettuce	Black Seeded Simpson	New England Seed Company	80	99
Lettuce	Paris Island Cos	Walmart/Ferry-Morse Seed Company	80	97
Lettuce	Great Lakes 118	Walmart/Ferry-Morse Seed Company	80	94
Lettuce	Butterking	Seeds of Change	80	94
Lettuce	Buttercrunch	Page Seed Company/Liberty Garden	80	98
Lettuce	Black Seeded Simpson	Livingston Seed Company	80	98
Lettuce	Buttercrunch	Agway, Inc.	80	97
Lettuce	Paris Island Cos	Agway, Inc.	80	98
Lettuce	Crisphead Iceberg	Martha Stewart Living Omnimedia, Inc.	80	98
Lettuce	Mighty Red Oak	Martha Stewart Living Omnimedia, Inc.	80	97
Lettuce	Prizehead	NK Lawn and Garden Company	80	98
Lettuce	Great Lakes 118 Crisphead	Burpee Organic/W. Atlee Burpee and Co.	80	94
Mustard	Southern Curled	Charles C. Hart Seed Company	75	95
Mustard	Tendergreen	Comstock-Ferre and Company	75	95
Mustard	Florida Broadleaf	Walmart/Ferry-Morse Seed Company	75	93
Mustard	Mizuna	Seeds of Change	75	94
Mustard	India	W. Atlee Burpee and Company	75	96
New Zealand Spinach		New England Seed Company	40	85

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Okra	Perkins Mammoth Long	Charles C. Hart Seed Company	50	48+43 H
Okra	Clemson Spineless	Comstock-Ferre and Company	50	86
Okra	Cajun Delight	New England Seed Company	50	99
Okra	Emerald	Walmart/Ferry-Morse Seed Company	50	26+54 H*
Okra	North and South	Martha Stewart Living Omnimedia, Inc.	50	100
Okra	Clemson Spineless	W. Atlee Burpee and Company	50	80
Onion	White Portugal	Charles C. Hart Seed Company	70	80
Onion	Yellow Sweet Spanish	Charles C. Hart Seed Company	70	54*
Onion	Evergreen White Bunching	Charles C. Hart Seed Company	70	78
Onion	Walla Walla	Comstock-Ferre and Company	70	88
Onion	Hardy White Bunching	New England Seed Company	70	82
Onion	Red Burgermaster	New England Seed Company	70	78
Onion	Southport White Globe	Walmart/Ferry-Morse Seed Company	70	85
Onion	Rossa di Milano	Seeds of Change	70	86
Onion	Green Scallion	Page Seed Company/Liberty Garden	70	92
Onion	Evergreen White Bunching	Livingston Seed Company	70	76
Onion	Candy	Agway, Inc.	70	89
Onion	Evergreen White Bunching	Martha Stewart Living Omnimedia, Inc.	70	79
Onion	Granex Yellow	Martha Stewart Living Omnimedia, Inc.	70	93
Onion	Lisbon White Bunching	NK Lawn and Garden Company	70	75
Onion	Sweet and Early	W. Atlee Burpee and Company	70	84
Parsley	Plain Leaf	Charles C. Hart Seed Company	60	82
Parsley	Hamburg Rooted	Comstock-Ferre and Company	60	81
Parsley	Dark Green Italian	Page Seed Company/Liberty Garden	60	51
Parsley	Extra Curled Dwarf	Martha Stewart Living Omnimedia, Inc.	60	72
Parsley	Hamburg Rooted	NK Lawn and Garden Company	60	80
Parsley	Single Italian Plain Leaf	W. Atlee Burpee and Company	60	86
Parsnip	Hollow Crown	Charles C. Hart Seed Company	60	71
Parsnip	All American	New England Seed Company	60	86
Parsnip	All American	Agway, Inc.	60	80
Parsnip	Hollow Crown	W. Atlee Burpee and Company	60	85
Pea	Sugar Bon	Charles C. Hart Seed Company	80	89+1 H
Pea	Tall Telephone	Charles C. Hart Seed Company	80	90+1 H
Pea	Mammoth Melting Sugar	Comstock-Ferre and Company	80	87
Pea	Wando	Comstock-Ferre and Company	80	97+1 H
Pea	Dakota	New England Seed Company	80	94
Pea	Sugar Daddy Snap	New England Seed Company	80	99
Pea	Sugar Snap	Walmart/Ferry-Morse Seed Company	80	94
Pea	Wando	Walmart/Ferry-Morse Seed Company	80	97
Pea	Sugar Pod 2	Seeds of Change	80	94
Pea	Oregon Sugar Pod II	Livingston Seed Company	80	91

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Pea	Little Marvel	Livingston Seed Company	80	96
Pea	Dwarf White Sugar	Agway, Inc.	80	95
Pea	Progress No. 9	Agway, Inc.	80	94
Pea	Sugar Snap	Martha Stewart Living Omnimedia, Inc.	80	81
Pea	Wando	Martha Stewart Living Omnimedia, Inc.	80	97+1 H
Pea	Little Marvel	NK Lawn and Garden Company	80	86+1 H
Pea	Sugar Ann	NK Lawn and Garden Company	80	91+1 H
Pea	Oregon Sugar Pod	Burpee Organic/W. Atlee Burpee and Co.	80	85+1 H
Pea	Burpeana Early	W. Atlee Burpee and Company	80	94+1 H
Pepper	Hot Hungarian Wax	Charles C. Hart Seed Company	55	62
Pepper	Sweet Banana	Charles C. Hart Seed Company	55	82
Pepper	Staddon	Charles C. Hart Seed Company	55	78
Pepper	Yolo Wonder	Comstock-Ferre and Company	55	68
Pepper	Scotch Bonnet Yellow	Comstock-Ferre and Company	55	65
Pepper	Red Marconi	Comstock-Ferre and Company	55	53
Pepper	Bell Boy	New England Seed Company	55	96
Pepper	Cubanelle Sweet Fryer	New England Seed Company	55	78
Pepper	Thai Dragon	New England Seed Company	55	87
Pepper	Long Thin Cayenne	Walmart/Ferry-Morse Seed Company	55	76
Pepper	Sweet Banana	Walmart/Ferry-Morse Seed Company	55	69
Pepper	Cal Wonder	Seeds of Change	55	56
Pepper	Early Calwonder	Page Seed Company/Liberty Garden	55	82
Pepper	Jalapeno	Livingston Seed Company	55	88
Pepper	Staddon's Select	Agway, Inc.	55	89
Pepper	Sweet Banana	Agway, Inc.	55	92
Pepper	Habanero	Martha Stewart Living Omnimedia, Inc.	55	83
Pepper	Cubanelle	Martha Stewart Living Omnimedia, Inc.	55	71
Pepper	Jupiter	NK Lawn and Garden Company	55	54
Pepper	Jalapeno	NK Lawn and Garden Company	55	99
Pepper	Jalapeno Early	Burpee Organic/W. Atlee Burpee and Co.	55	89
Pepper	California Wonder	W. Atlee Burpee and Company	55	84
Pumpkin	Jack Be Little	Charles C. Hart Seed Company	75	93
Pumpkin	Howden	Charles C. Hart Seed Company	75	87
Pumpkin	Autumn Gold	Comstock-Ferre and Company	75	88
Pumpkin	Big Max	New England Seed Company	75	96
Pumpkin	Jack O'Lantern	New England Seed Company	75	92
Pumpkin	Big Max	Walmart/Ferry-Morse Seed Company	75	96
Pumpkin	Ichabod	Agway, Inc.	75	95
Radish	Scarlet Globe	Charles C. Hart Seed Company	75	97
Radish	Long White Icicle	Comstock-Ferre and Company	75	93
Radish	Champion	New England Seed Company	75	98
Radish	Champion	Walmart/Ferry-Morse Seed Company	75	96

Table 1 (continued). Germination of vegetable seeds. Standards are provided by the rules and regulations of the Federal Seed Act. * = Does not meet label claim. H= Seeds remained hard at the end of the test period because they did not absorb water due to an impermeable seed coat.

Plant	Variety	Seed Company	Standard	Germ. Found
Radish	Chinese White Winter	Agway, Inc.	75	98
Radish	Crimson Giant	Martha Stewart Living Omnimedia, Inc.	75	99
Radish	Cherry Belle	NK Lawn and Garden Company	75	96
Radish	Salad Rose	W. Atlee Burpee and Company	75	90
Rutabaga	American Purple Top Yellow	Charles C. Hart Seed Company	75	94
Rutabaga	Improved Purple Top Yellow	New England Seed Company	75	95
Rutabaga	American Purple Top	Agway, Inc.	75	99
Sage	Sweet	Charles C. Hart Seed Company	60	90
Sage	Broadleaf	Comstock-Ferre and Company	60	90
Sage		New England Seed Company	60	89
Sage	Broadleaf	Walmart/Ferry-Morse Seed Company	60	83
Sage	Cook's Companion	Livingston Seed Company	60	91
Sage	Broadleaf	NK Lawn and Garden Company	60	69
Sage	Common	W. Atlee Burpee and Company	60	81
Salsify	Mammoth Sandwich	Charles C. Hart Seed Company	75	99
Salsify	Scorzoneria	Comstock-Ferre and Company	75	77
Spinach	Hybrid No. 7	Comstock-Ferre and Company	60	86
Spinach	Melody	New England Seed Company	60	90
Spinach	Bloomsdale Long Standing	Walmart/Ferry-Morse Seed Company	60	90
Spinach	America	Seeds of Change	60	94
Spinach	Bloomsdale Long Standing	Page Seed Company/Liberty Garden	60	97
Spinach	Melody	Agway, Inc.	60	88
Spinach	Teton	Martha Stewart Living Omnimedia, Inc.	60	89
Spinach	Indian Summer	NK Lawn and Garden Company	60	94
Spinach	Salad Fresh	W. Atlee Burpee and Company	60	82
Squash	Buttercup Burgess	Charles C. Hart Seed Company	75	98
Squash	Straightneck Yellow	Charles C. Hart Seed Company	75	74
Squash	Early Prolific Straightneck	Comstock-Ferre and Company	75	84
Squash	Table Ace	Comstock-Ferre and Company	75	92
Squash	Ambassador	New England Seed Company	75	100
Squash	Patty Pan	New England Seed Company	75	82
Squash	Butternut, Early	New England Seed Company	75	98
Squash	Black Beauty Zucchini	Walmart/Ferry-Morse Seed Company	75	91
Squash	Waltham Butternut	Walmart/Ferry-Morse Seed Company	75	82
Squash	Buttercup	Livingston Seed Company	75	94
Squash	Ambercup	Agway, Inc.	75	99
Squash	Early Prolific Straightneck	Agway, Inc.	75	99
Squash	Burpee's Fordhook	Martha Stewart Living Omnimedia, Inc.	75	79
Squash	Spaghetti	Martha Stewart Living Omnimedia, Inc.	75	96
Squash	Early Prolific Straightneck	NK Lawn and Garden Company	75	69

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Plant	Variety	Seed Company	Standard	Germ. Found
Squash	Waltham Butternut	NK Lawn and Garden Company	75	87
Squash	Waltham Butternut	W. Atlee Burpee and Company	75	92
Swiss chard	Rhubarb	Charles C. Hart Seed Company	65	97
Swiss chard	Giant Lucullus	Comstock-Ferre and Company	65	86
Swiss chard	Fordhook Giant	New England Seed Company	65	90
Swiss chard	Bright Lights	Walmart/Ferry-Morse Seed Company	65	83
Swiss chard	Ruby Red	Agway, Inc.	65	93
Swiss chard	Rhubarb	Martha Stewart Living Omnimedia, Inc.	65	90
Swiss chard	Rhubarb	NK Lawn and Garden Company	65	94
Tomatillo	Toma Verde	Comstock-Ferre and Company	50	95
Tomatillo		Martha Stewart Living Omnimedia, Inc.	50	95
Tomato	Marglobe	Charles C. Hart Seed Company	75	90
Tomato	Roma	Charles C. Hart Seed Company	75	75
Tomato	Red Cherry Large	Charles C. Hart Seed Company	75	90
Tomato	Supersonic	Comstock-Ferre and Company	75	86
Tomato	Comstocks Sauce and Slice	Comstock-Ferre and Company	75	88
Tomato	Beefmaster VFN	New England Seed Company	75	87
Tomato	Sweet 100	New England Seed Company	75	95
Tomato	Rutgers	Walmart/Ferry-Morse Seed Company	75	95
Tomato	Roma VFN	Walmart/Ferry-Morse Seed Company	75	94
Tomato	Delicious	Page Seed Company/Liberty Garden	75	84
Tomato	Clemson Cushion Beefsteak	Livingston Seed Company	75	96
Tomato	Roma VF	Martha Stewart Living Omnimedia, Inc.	75	95
Tomato	Roma	Burpee Organic/W. Atlee Burpee and Co.	75	85
Tomato	Super Beefsteak	W. Atlee Burpee and Company	75	86
Turnip	Seven Top	New England Seed Company	80	99
Turnip	Purple Top White Globe	Walmart/Ferry-Morse Seed Company	80	97
Turnip	Purple Top White Globe	Martha Stewart Living Omnimedia, Inc.	80	96
Turnip	Seven Top	W. Atlee Burpee and Company	80	88
Watermelon	Sugar Baby	Charles C. Hart Seed Company	70	95
Watermelon	Cream of Saskatchewan	Comstock-Ferre and Company	70	95
Watermelon	Sugar Baby	New England Seed Company	70	92
Watermelon	Congo	Walmart/Ferry-Morse Seed Company	70	94
Watermelon	Charleston Gray	NK Lawn and Garden Company	70	88

Table 2. Summary for each seed company of total number of germination claims and the percentage that met or failed label claims.

Seed Company	Total Number of Claims	% Meeting Claims	% Not Meeting Claims
Agway, Inc	34	97	3
Burpee Organic/W. Atlee Burpee and Co.	6	100	0
Charles C. Hart Seed Company	50	98	2
Comstock-Ferre and Company	50	100	0
Livingston Seed Company	17	100	0
Martha Stewart Living Omnimedia, Inc.	36	100	0
New England Seed Company	49	100	0
NK Lawn and Garden Company	23	100	0
Page Seed Company/Liberty Garden	12	100	0
Seeds of Change	12	100	0
W. Atlee Burpee and Company	22	96	4
Walmart/Ferry-Morse Seed Company	38	97	3

Table 3. Summary by vegetable type of number of samples tested, average percent germination found, and germination standards. Standards are provided for by the rules and regulations of the Federal Seed Act.

Plant	Samples Tested	Standard	Average Germination
Artichoke	1	60	74
Asparagus	1	70	89
Bean	19	70	87
Bean, lima	3	70	66
Beet	10	65	89
Broccoli	10	75	87
Broccoli raab	2	75	94
Brussels sprouts	6	70	90
Cabbage	7	75	84
Cantaloupe	6	75	92
Carrot	12	55	86
Cauliflower	6	75	91
Celeriac	1	55	56
Celery	2	55	76
Chicory	3	65	86
Chinese cabbage	4	75	91
Collards	6	80	95
Corn	19	75	96
Cornsalad	1	70	80
Cowpea	1	75	90
Cress	1	60	56
Cucumber	14	80	95
Dill	4	60	83
Eggplant	7	60	66
Endive	6	70	87
Kale	6	75	95
Kohlrabi	5	75	94
Leek	6	60	90
Lettuce	17	80	96
Mustard	5	75	95
New Zealand spinach	1	40	85
Okra	6	50	73
Onion	15	70	81
Parsley	6	60	75
Parsnip	4	60	80
Pea	19	80	92
Pepper	22	55	77
Pumpkin	7	75	92
Radish	8	75	92
Rutabaga	3	75	96
Sage	7	60	85
Salsify	2	75	88
Spinach	9	60	90
Squash	17	75	89
Swiss chard	7	65	90
Tomatillo	2	50	95
Tomato	14	75	89
Turnip	4	80	95
Watermelon	5	70	93

Table 4. Germination and purity of lawn seed. Results for purity and germination are for seeds separated by genus and not by species or variety are reported for that genus. Tolerance (Tol) is calculated according to the rules for seed testing published by the Association of Official Seed Analysts (AOSA). Variance (Var) is calculated as Purity Found (Pur F) minus Purity Claimed (Pur C). Germination Claimed (Germ C); Germination Found (Germ F). * = Does not meet label claim.

Seed Company	Seed Mixture	Pur C	Pur F	Var	Tol	Germ C	Germ F
Loft's Seed Co.	<i>Lofts All Perennial Landscape Mix</i>						
	85/80 Kentucky Bluegrass	13.70	16.84	3.14	1.87 *	80	84
	Palmer III Perennial Ryegrass	59.53	57.15	-2.38	4.19	90	93
	Creeping Red Fescue	24.53	22.60	-1.93	2.96	94	83 *
Pennington Seed, Inc.	<i>Pennington Professional Select Northeast Mixture</i>						
	Kenblue Kentucky Bluegrass	9.50	12.40	2.90	1.47 *	85	79
	Sonata Perennial Ryegrass	73.00	73.84	0.84	2.92	90	97
	Boreal Red Fescue	14.00	12.30	-1.70	2.36	80	80
Blue Seal Feeds, Inc.	<i>Blue Seal Feed Classic Lawn Mixture</i>						
	Kentucky Bluegrass	34.72	40.14	5.42	3.94 *	85	89
	Accent Perennial Ryegrass	18.76				85	94
	Allstar Perennial Ryegrass	19.66				90	94
	total Perennial Ryegrass	38.42	34.32	-4.10	5.38		
	Creeping Red Fescue	24.28	23.00	-1.28	4.12	85	92
New England Seed Co.	<i>Putnam Co-op Landscape Mix</i>						
	Kentucky Bluegrass	18.34	22.00	3.66	2.44 *	80	71
	Racer Perennial Ryegrass	24.00				90	95
	Annual Ryegrass	14.98				90	95
	total Ryegrass	38.98	38.41	-0.57	4.86		
	Creeping Red Fescue	19.70				85	75
	Chewings Fescue	19.68				85	75
	total Fine Fescue	39.38	36.22	-3.06	3.81		
New England Seed Co.	<i>Putnam Co-op Conservation Mix</i>						
	Perennial Ryegrass	19.26				90	96
	Annual Ryegrass	19.97				90	96
	total Ryegrass	39.23	39.39	0.10	3.40		
	Creeping Red Fescue	19.70	19.36	-0.34	2.42	85	88
	Tall Fescue	33.96	32.03	-1.93	3.78	85	95
	White Clover	4.95	6.67	1.72	1.00 *	85	95
Charles C. Hart Seed Co.	<i>Holdridge Quick Grow Lawn Seed Mixture</i>						
	Kentucky Bluegrass	8.86	8.96	0.10	1.19	80	81
	Perennial Ryegrass	9.81				90	93
	Annual Ryegrass	78.56				90	93
	total Ryegrass	88.37	87.81	-0.56	1.47		
Charles C. Hart Seed Co.	<i>Holdridge Custom All Purpose Lawn Seed Mixture</i>						
	Kentucky Bluegrass	14.27	14.49	0.22	1.86	85	78
	Cutter Perennial Ryegrass	34.58				90	93
	Express Perennial Ryegrass	29.34				90	93
	total Perennial Ryegrass	63.92	63.61	-0.31	3.70		
	Creeping Red Fescue	19.51	17.22	-2.29	2.76	85	87

Table 4 (continued). Germination and purity of lawn seed. Results for purity and germination are for seeds separated by genus and not by species or variety are reported for that genus. Tolerance (Tol) is calculated according to the rules for seed testing published by the Association of Official Seed Analysts (AOSA). Variance (Var) is calculated as Purity Found (Pur F) minus Purity Claimed (Pur C). Germination Claimed (Germ C); Germination Found (Germ F). * = Does not meet label claim.

Seed Company	Seed Mixture	Pur C	Pur F	Var	Tol	Germ C	Germ F
Southern States Coop, Inc.	<i>Agway Fall Seeding Mixture</i>						
	Kentucky Bluegrass	23.31	27.16	3.85	2.90 *	80	83
	Partner Perennial Ryegrass	24.36				90	94
	Caddieshack Perennial Ryegrass	24.31				90	94
	Buccaneer Perennial Ryegrass	24.37				90	94
	total Perennial Ryegrass	73.04	68.45	-4.59	3.32 *		
Southern States Coop, Inc.	<i>Agway Contractor's Mixture</i>						
	Perennial Ryegrass	41.75				90	91
	Annual Ryegrass	38.98				90	91
	total Ryegrass	80.73	84.13	3.40	2.29		
	Creeping Red Fescue	14.80	14.69	-0.11	2.15	85	92
New England Seed Co.	<i>New England Seed Co. Athletic Lawn Mix</i>						
	Kentucky Bluegrass	8.87	12.83	3.96	1.47 *	80	92
	Nexus Perennial Ryegrass	39.42	41.22	1.80	3.79	90	90
	Creeping Red Fescue	9.80	10.79	0.99	2.19	85	86
	Cochise Tall Fescue	19.46				85	99
	Genesis Tall Fescue	19.94				85	99
	total Tall Fescue	39.40	32.77	-6.63	4.32 *		
Jonathan Green, Inc.	<i>Jonathan Green Full Sun Grass Seed Mixture</i>						
	Washington Kentucky Bluegrass	19.65	20.71	1.06	2.44	90	88
	Plymouth Perennial Ryegrass	19.70				92	89
	Jockey Perennial Ryegrass	19.70				92	89
	total Perennial Ryegrass	39.40	42.70	3.30	4.66		
	Warwick Hard Fescue	19.60				90	53 *
	Salem Creeping Red Fescue	9.80				90	53 *
	Carmen Chewings Fescue	9.80				90	53 *
	total Fine Fescue	39.20	35.47	-3.73	3.81		
The Scotts Co.	<i>Scotts Turf Builder Contractor's All Purpose Mix</i>						
	Locksaw Kentucky Bluegrass	9.77	11.70	1.93	1.47 *	85	90
	Goalkeeper Perennial Ryegrass	28.54				90	93
	Gulf Perennial Ryegrass	24.79				90	93
	Pearl II Perennial Ryegrass	19.70				90	93
	total Perennial Ryegrass	73.03	74.13	1.10	2.92		
	Boreal Creeping Red Fescue	14.67	13.19	-1.48	2.36	85	95
Lesco, Inc.	<i>Lesco Eagle Blend Plus Blue Mixture</i>						
	Shamrock Kentucky Bluegrass	24.28	27.18	2.90	2.90	85	90
	Pacesetter Perennial Ryegrass	24.57				90	94
	Legacy II Perennial Ryegrass	24.06				90	94
	Prosport Perennial Ryegrass	24.03				90	94
	total Perennial Ryegrass	72.66	71.15	-1.51	3.32		

Table 4 (continued). Germination and purity of lawn seed. Results for purity and germination are for seeds separated by genus and not by species or variety are reported for that genus. Tolerance (Tol) is calculated according to the rules for seed testing published by the Association of Official Seed Analysts (AOSA). Variance (Var) is calculated as Purity Found (Pur F) minus Purity Claimed (Pur C). Germination Claimed (Germ C); Germination Found (Germ F). * = Does not meet label claim.

Seed Company	Seed Mixture	Pur C	Pur F	Var	Tol	Germ C	Germ F
Lesco, Inc.	<i>Lesco Shade Seed Mixture</i>						
	Shamrock Kentucky Bluegrass	5.01	6.12	1.11	1.11	85	90
	Laredo Perennial Ryegrass	14.43	17.13	2.70	3.10	90	97
	Brittany Chewings Fescue	34.34				90	85
	Shademark Red Fescue	34.02				85	85
	Defiant Hard Fescue	9.89				85	85
	total Fine Fescue	78.25	75.87	-2.38	2.96		
Lebanon Seaboard Co.	<i>Mackey's Premium Finest Mixture</i>						
	Raven Kentucky Bluegrass	24.98	30.98	6.00	3.12 *	85	95
	Buccaneer Perennial Ryegrass	29.66				90	92
	Nexus Perennial Ryegrass	28.73				90	92
	total Perennial Ryegrass	58.39	56.43	-1.96	4.53		
	Creeping Red Fescue	14.72	11.90	-2.82	1.73 *	85	91

Table 5. Germination and purity of crop seed. Germination Claimed (Germ Claim); Germination Found (Germ Found); * = Does not meet label claim.

Seed Mixture	Seed Company	Purity Claim	Purity Found	Germ Claim	Germ Found
Wheat	Crop Production Services	98.99	90.9*	80	55*
Rye	Crop Production Services	99.18	96.2*	69	91
Rye	Plainfield Crop Center	96.00	92.9*	90	82
Rye	Agriculver, Inc.	98.00	99.9	85	94

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