

Seed Germination and Purity

Analysis 2014

Sharon M. Douglas, Ph.D.
Department of Plant Pathology & Ecology



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SEED GERMINATION AND PURITY ANALYSIS 2014

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Official samples of 315 vegetable, 7 lawn, and 7 crop seeds were collected by inspectors from the Bureau of Regulation and Inspection of the Connecticut Department of Agriculture for testing in 2014. 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 14 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. Tests were replicated twice. In addition, seedlings must 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 315 vegetable seed samples tested, 38 did not meet their label claims for germination. They were not retested because of insufficient numbers of seeds. Seed samples were examined for prohibited noxious weed seeds and 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. Five of the seven lawn seed samples tested met label claims for both purity and germination. One sample failed purity claims but passed germination claims. One sample failed germination claims but passed purity claims. None of the 2014 lawn samples contained seeds of noxious weeds.

Table 5 shows the results of purity and germination tests on crop seed samples. Six of the seven seed samples passed claims for both purity and germination. One sample failed claims for germination, but passed label claims for purity. No noxious weeds were identified in the samples.

Mary K. Inman and Pamela Sletten performed the testing following the Association of Official Seed Analysts (AOSA) rules for testing seeds. Dr. Sharon M. Douglas completed the analyses. Wayne S. Nelson, Seed Control Official, collected the samples. 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. H= Seeds hard because they did not absorb water due to an impermeable seed coat. * = Does not meet label claim.

Plant	Cultivar	Seed Company	Standard	Found	
Artichoke	Green Globe	Comstock, Ferre and Company	60	73	
Artichoke	Romanesco	New England Seed/La Semiorto Sementi	60	73	
Asparagus	Giant Argenteuil	Comstock, Ferre and Company	70	76	
Bean	Black Valentine	Comstock, Ferre and Company	70	57	*
Bean	Blue Lake Bush	Livingston Seed Company	70	64	
Bean	Blue Lake Bush	Seeds of Change	70	76	
Bean	Blue Lake Pole	Livingston Seed Company	70	43+16H	*
Bean	Burpee Stringless	The Page Seed Company	70	64	
Bean	Bush Blue Lake	New England Seed	70	32	*
Bean	Contender	Comstock, Ferre and Company	70	89	
Bean	Goldcrop Wax	The Charles C. Hart Seed Company	70	64	
Bean	Golden Butterwax	Seedway Inc	70	43	*
Bean	Kentucky Wonder Pole	Plantation Products LLC/Ferry-Morse	70	72	
Bean	Kitchen King	Burpee Garden Products Co.	70	56	*
Bean	Nano	New England Seed/La Semiorto Sementi	70	72	
Bean	Pregiato	New England Seed/La Semiorto Sementi	70	63	
Bean	Red Kidney	The Charles C. Hart Seed Company	70	64	
Bean	Romano Pole	New England Seed	70	0	*
Bean	Tavera	Botanical Interests Inc.	70	77	
Bean	Tendergreen Improved	Plantation Products LLC/Ferry-Morse	70	66	
Bean	Top Crop	Plantation Products Inc. / NK	70	65	
Bean, lima	Fordhook 242	New England Seed	70	28	*
Bean, lima	Henderson	The Charles C. Hart Seed Company	70	38	*
Bean, lima	Henderson Bush	Comstock, Ferre and Company	70	0	*
Beet	Bull's Blood	Baker Creek Heirloom Seeds	65	59	
Beet	Chioggia Guardsmark	Seedway Inc	65	72	
Beet	Cylindra	Burpee Garden Products Co.	65	92	
Beet	Da Orto D'Egitto	New England Seed/La Semiorto Sementi	65	78	
Beet	Detroit Dark Red	Livingston Seed Company	65	71	
Beet	Detroit Dark Red	The Page Seed Company	65	60	
Beet	Detroit Dark Red- Red Morse's Strain	Plantation Products LLC/Ferry-Morse	65	84	
Beet	Early Wonder	Botanical Interests Inc.	65	89	
Beet	Early Wonder	Seedway LLC/Olds	65	87	
Beet	Early Wonder	The Charles C. Hart Seed Company	65	85	
Beet	Red Ace F1	New England Seed	65	93	
Beet	Ruby Queen	Comstock, Ferre and Company	65	73	
Beet	Ruby Queen	Plantation Products Inc. / NK	65	79	
Broccoli	Baton Hybrid	New England Seed	75	94	
Broccoli	Calabrese	Comstock, Ferre and Company	75	3	*
Broccoli	Calabrese	The Charles C. Hart Seed Company	75	87	
Broccoli	Calabrese Green Sprouting	The Page Seed Company	75	72	
Broccoli	Early Green	Seeds of Change	75	95	
Broccoli	Green Sprouting	Baker Creek Heirloom Seeds	75	85	
Broccoli	Green Sprouting Calabrese	Livingston Seed Company	75	93	

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

Plant	Cultivar	Seed Company	Standard	Found
Broccoli	Green Sprouting Calabrese	Seedway LLC/Olds	75	94
Broccoli	Smart Snack Hybrid	Burpee Garden Products Co.	75	93
Broccoli	Southern Comet	Seedway Inc	75	71
Broccoli	Waltham 29	Plantation Products Inc. / NK	75	88
Broccoli raab	Rapini	Botanical Interests Inc.	75	94
Broccoli raab	Riccio DiSarno	New England Seed/La Semiorto Sementi	75	15 *
Broccoli raab	Spring raab	The Charles C. Hart Seed Company	75	94
Brussels sprouts	Catskill	Seedway Inc	70	83
Brussels sprouts	Long Island Improved	Burpee Garden Products Co.	70	49 *
Brussels sprouts	Long Island Improved	Comstock, Ferre and Company	70	68
Brussels sprouts	Long Island Improved	Livingston Seed Company	70	83
Brussels sprouts	Long Island Improved	The Charles C. Hart Seed Company	70	90
Cabbage	All Seasons	Burpee Garden Products Co.	75	96
Cabbage	Copenhagen Market	Comstock, Ferre and Company	75	91
Cabbage	Danish Ballhead	The Charles C. Hart Seed Company	75	51 *
Cabbage	Danny Boy	New England Seed	75	60 *
Cabbage	Early Golden Acre	Plantation Products Inc. / NK	75	61 *
Cabbage	Early Thunder	Seedway Inc	75	91
Cabbage	Golden Acre	New England Seed	75	58 *
Cabbage	Red Express	Baker Creek Heirloom Seeds	75	90
Cabbage	Verza DiNapoli Precoce	New England Seed/La Semiorto Sementi	75	84
Cantaloupe	Athena	New England Seed	75	98
Cantaloupe	Delicious	The Charles C. Hart Seed Company	75	78
Cantaloupe	Hale's Best Jumbo	Burpee Garden Products Co.	75	97
Cantaloupe	Hale's Best Jumbo	New England Seed	75	96
Cantaloupe	Hale's Best Jumbo	Plantation Products LLC/Ferry-Morse	75	86
Cantaloupe	Honey Rock	Livingston Seed Company	75	48 *
Cantaloupe	Rugoso Di Cosenzo	New England Seed/La Semiorto Sementi	75	93
Cantaloupe	Tubago Hybrid Mini	New England Seed	75	43 *
Carrot	Coreless Nantes	New England Seed	55	62
Carrot	Jaune Obtuse Du Doubs	Comstock, Ferre and Company	55	73
Carrot	Nantes	Livingston Seed Company	55	77
Carrot	Nantes Coreless	The Page Seed Company	55	67
Carrot	Red Chantenay	The Charles C. Hart Seed Company	55	74
Cauliflower	Blend	Seedway Inc	75	85
Cauliflower	Di Sicilia Violetto	New England Seed/La Semiorto Sementi	75	49 *
Cauliflower	Early Snowball	Comstock, Ferre and Company	75	92
Cauliflower	Early Snowball	New England Seed	75	87
Cauliflower	Early Snowball	The Charles C. Hart Seed Company	75	84
Cauliflower	Jade Hybrid	Burpee Garden Products Co.	75	87
Cauliflower	Purple of Sicily	Baker Creek Heirloom Seeds	75	92
Cauliflower	Romanesco Natalino	New England Seed/La Semiorto Sementi	75	86

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

Plant	Cultivar	Seed Company	Standard	Found	
Celeriac	Giant Prague	Baker Creek Heirloom Seeds	55	3	*
Celery	Giant Pascal	The Charles C. Hart Seed Company	55	9	*
Celery	Tall Utah	New England Seed	55	53	
Chicory	Catalogna	New England Seed	65	84	
Chicory	Dolci Talli	New England Seed/La Semiorto Sementi	65	87	
Chicory	Pallo Rossa Precoce	New England Seed/La Semiorto Sementi	65	76	
Chinese cabbage	Baby Choi	Burpee Garden Products Co.	75	94	
Chinese cabbage	Bok choi	The Charles C. Hart Seed Company	75	96	
Chinese cabbage	Michili	Baker Creek Heirloom Seeds	75	96	
Chinese cabbage	Michili	New England Seed	75	68	
Chinese cabbage	Pak Choi	Seedway Inc	75	92	
Collards	Georgia	Burpee Garden Products Co.	80	77	
Collards	Georgia	New England Seed	80	95	
Collards	Vates	Comstock, Ferre and Company	80	85	
Collards	Vates	The Charles C. Hart Seed Company	80	94	
Corn	Butter and Sugar	New England Seed	75	89	
Corn	Butter and Sugar	The Charles C. Hart Seed Company	75	82	
Corn	Country Gentleman	Comstock, Ferre and Company	75	85	
Corn	Delicious	Burpee Garden Products Co.	75	84	
Corn	Early Golden Bantam	Plantation Products LLC/Ferry-Morse	75	69	
Corn	Fantastic	Seedway Inc	75	91	
Corn	Golden Bantam	Seeds of Change	75	77	
Corn	Golden Beauty	The Charles C. Hart Seed Company	75	77	
Corn	Jubilee	Burpee Garden Products Co.	75	82	
Corn	Peaches and Cream	Livingston Seed Company	75	77	
Corn	Quickie	New England Seed	75	86	
Corn	Silver Queen	New England Seed	75	90	
Corn	Silver Queen	Seedway Inc	75	94	
Cornsalad	Big Seeded	Botanical Interests Inc.	70	85	
Cornsalad	Coquille de Louvien	Baker Creek Heirloom Seeds	70	36	*
Cornsalad	Tenderleaf	Burpee Garden Products Co.	70	87	
Cornsalad	Vert de Cambrai	New England Seed	70	38	*
Cress	Curled or Peppergrass	New England Seed	75	97	
Cress	Upland	Livingston Seed Company	60	96	
Cucumber	Blanco	New England Seed/La Semiorto Sementi	80	71	
Cucumber	Boston Pickling	Livingston Seed Company	80	90	
Cucumber	Boston Pickling	New England Seed	80	95	
Cucumber	Chinese Slangen	New England Seed/La Semiorto Sementi	80	86	
Cucumber	Long Green	The Charles C. Hart Seed Company	80	95	
Cucumber	Marketmore	Seeds of Change	80	96	
Cucumber	Marketmore 76	Plantation Products LLC/Ferry-Morse	80	97	

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

Plant	Cultivar	Seed Company	Standard	Found
Cucumber	Marketmore 76	The Page Seed Company	80	92
Cucumber	Straight Eight	Burpee Garden Products Co.	80	96
Cucumber	Straight Eight	Livingston Seed Company	80	87
Cucumber	Straight Eight	New England Seed	80	94
Cucumber	Straight Eight	The Charles C. Hart Seed Company	80	96
Dill	Bouquet	Botanical Interests Inc.	60	73
Dill	Bouquet	New England Seed	60	65
Dill	Bouquet	The Charles C. Hart Seed Company	60	77
Dill	Mammoth	Livingston Seed Company	60	75
Dill	Mammoth	Seedway LLC/Olds	60	87
Dill	Tetra	Burpee Garden Products Co.	60	64
Dill	Vierling	Baker Creek Heirloom Seeds	60	34 *
Dill		Comstock, Ferre and Company	60	52
Dill		Seeds of Change	60	80
Eggplant	Black Beauty	Botanical Interests Inc.	60	68
Eggplant	Black Beauty	New England Seed	60	58
Eggplant	Black Beauty	Plantation Products Inc. / NK	60	53
Eggplant	Black Beauty	The Charles C. Hart Seed Company	60	36 *
Eggplant	High Bush Select	Seedway Inc	60	64
Eggplant	Long Purple	New England Seed	60	53
Eggplant	Pingtung Long	Burpee Garden Products Co.	60	24 *
Eggplant	Romanesco	New England Seed/La Semiorto Sementi	60	30 *
Endive	Batavian Full Heart	New England Seed	70	84
Endive	Catalogna Emerald	Burpee Garden Products Co.	70	63
Endive	Full Heart	Seedway Inc	70	82
Endive	Green Curled	Comstock, Ferre and Company	70	84
Endive	Green Curled	The Charles C. Hart Seed Company	70	90
Endive	Riccia Santantuono	New England Seed/La Semiorto Sementi	70	27 *
Kale	Blue Scotch Curled	Livingston Seed Company	75	96
Kale	Dwarf Blue Curled Vates	Burpee Garden Products Co.	75	91
Kale	Lucinato	The Charles C. Hart Seed Company	75	86
Kale	Marrow Stem	Baker Creek Heirloom Seeds	75	93
Kale	Red Russian	New England Seed	75	91
Kale	Red Winter	Botanical Interests Inc.	75	98
Kale	Russian Red	Seedway LLC/Olds	75	98
Kale	Siberian	Comstock, Ferre and Company	75	93
Kohlrabi	Early Purple Vienna	Comstock, Ferre and Company	75	93
Kohlrabi	Early White Vienna	Burpee Garden Products Co.	75	92
Kohlrabi	Early White Vienna	Plantation Products Inc. / NK	75	94
Kohlrabi	Purple Vienna	Seedway LLC/Olds	75	98
Kohlrabi	White Vienna	New England Seed	75	95
Leek	American Broad Flag	New England Seed	60	64
Leek	American Flag	Burpee Garden Products Co.	60	75

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

Plant	Cultivar	Seed Company	Standard	Found
Leek	American Flag	Livingston Seed Company	60	68
Leek	Bulgarian Giant	Baker Creek Heirloom Seeds	60	75
Leek	Extra Large Carentan	Comstock, Ferre and Company	60	63
Leek	King Richard	Botanical Interests Inc.	60	80
Lettuce	Baby Oakleaf	Baker Creek Heirloom Seeds	80	92
Lettuce	Baby Romaine	Livingston Seed Company	80	91
Lettuce	Big Boston	New England Seed	80	88
Lettuce	Black Seeded Simpson	Comstock, Ferre and Company	80	74
Lettuce	Black Seeded Simpson	New England Seed	80	87
Lettuce	Black Seeded Simpson	Plantation Products LLC/Ferry-Morse	80	97
Lettuce	Black Seeded Simpson	The Charles C. Hart Seed Company	80	94
Lettuce	Black Seeded Simpson	The Page Seed Company	80	91
Lettuce	Buttercrunch	Livingston Seed Company	80	95
Lettuce	Buttercrunch	Plantation Products Inc. / NK	80	85
Lettuce	Buttercrunch	The Page Seed Company	80	88
Lettuce	Cavolo DiNapoli	New England Seed/La Semiorto Sementi	80	2 *
Lettuce	Fresh Heart	Seeds of Change	80	65 *
Lettuce	Great Lakes	New England Seed	80	87
Lettuce	Iceberg	Burpee Garden Products Co.	80	96
Lettuce	Little Gem	Botanical Interests Inc.	80	91
Lettuce	Lolla Rosa Dark	Seedway LLC/Olds	80	85
Lettuce	Marvel of Four Seasons	Botanical Interests Inc.	80	90
Lettuce	Nevada	Seeds of Change	80	97
Lettuce	Paris Island Cos	New England Seed	80	90
Lettuce	Paris Island Cos	The Page Seed Company	80	90
Lettuce	Prizehead	Seedway Inc	80	92
Lettuce	Quattro Stagioni	New England Seed/La Semiorto Sementi	80	90
Lettuce	Romaine Cos	The Charles C. Hart Seed Company	80	96
Lettuce	Rouge Di Hiver	Seedway LLC/Olds	80	74
Mustard	Deep Purple	New England Seed	75	86
Mustard	Florida Broadleaf	New England Seed	75	96
Mustard	Mizuna	Botanical Interests Inc.	75	79
Mustard	Southern Curled	The Charles C. Hart Seed Company	75	92
Mustard	Southern Giant	Comstock, Ferre and Company	75	81
New Zealand Spinach		New England Seed	40	32
Okra	Clemson Spineless	Livingston Seed Company	50	80
Okra	Clemson Spineless	New England Seed	50	68
Okra	Long Green	The Charles C. Hart Seed Company	50	63
Onion	Long White Bunching	Seedway Inc	70	72
Onion	Sweet Spanish	New England Seed	70	88
Onion	Sweet Spanish	Plantation Products Inc. / NK	70	73
Onion	Tropeana Lunga	Baker Creek Heirloom Seeds	70	74
Onion	Valencia	Seeds of Change	70	88
Onion	White Lisbon	Comstock, Ferre and Company	70	84

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

Plant	Cultivar	Seed Company	Standard	Found	
Onion	White Lisbon Bunching	Plantation Products LLC/Ferry-Morse	70	84	
Onion	Yellow Sweet Spanish	The Charles C. Hart Seed Company	70	90	
Parsley	A Grosse Racine Gros Hatif	Baker Creek Heirloom Seeds	60	61	
Parsley	Dark Green Italian	The Page Seed Company	60	85	
Parsley	Italian Flat	Seeds of Change	60	62	
Parsley	Italian Giant	Seedway LLC/Olds	60	61	
Parsley	Moss Curled	Botanical Interests Inc.	60	79	
Parsley	Moss Curled	New England Seed	60	77	
Parsley	Plain Leaf Italian	The Charles C. Hart Seed Company	60	82	
Parsnip	All American	Seedway Inc	60	75	
Parsnip	All-American	Comstock, Ferre and Company	60	62	
Parsnip	Harris Model	Baker Creek Heirloom Seeds	60	77	
Pea	Alaska	Plantation Products LLC/Ferry-Morse	80	87	
Pea	Early Frosty	Seedway Inc	80	98	
Pea	Green Arrow	Livingston Seed Company	80	85	
Pea	Lincoln	New England Seed	80	95	
Pea	Oregon Sugar Pod	The Charles C. Hart Seed Company	80	83	
Pea	Sugar Snap	New England Seed	80	92	
Pea	Tall Telephone	The Charles C. Hart Seed Company	80	61	*
Pepper	California Wonder	Burpee Garden Products Co.	55	18	*
Pepper	California Wonder	Plantation Products Inc. / NK	55	61	
Pepper	California Wonder	Plantation Products LLC/Ferry-Morse	55	19	*
Pepper	California Wonder	The Charles C. Hart Seed Company	55	68	
Pepper	Calwonder	New England Seed	55	54	
Pepper	Cubanelle	The Charles C. Hart Seed Company	55	60	
Pepper	Early Jalapeno	New England Seed	55	75	
Pepper	Giapponese	New England Seed/La Semiorto Sementi	55	49	
Pepper	Habanero	Plantation Products Inc. / NK	55	42	
Pepper	Jalapeno	Livingston Seed Company	55	90	
Pepper	Jalapeno M	Burpee Garden Products Co.	55	57	
Pepper	Long Red Cayenne	New England Seed	55	39	*
Pepper	Numex Big Jim Chili	The Page Seed Company	55	51	
Pepper	Sweet Banana	Livingston Seed Company	55	55	
Pumpkin	Big Max	The Charles C. Hart Seed Company	75	76	
Pumpkin	Connecticut Field	The Charles C. Hart Seed Company	75	79	
Pumpkin	Dills Atlantic Giant	New England Seed	75	78	
Pumpkin	Howden	New England Seed	75	71	
Pumpkin	Moonscape	New England Seed	75	88	
Pumpkin	Ritz	New England Seed	75	84	
Pumpkin	Small Sugar	The Charles C. Hart Seed Company	75	85	
Radish	Champion	The Page Seed Company	75	90	
Radish	Cherry	Seeds of Change	75	94	
Radish	Cherry Belle	Botanical Interests Inc.	75	93	

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

Plant	Cultivar	Seed Company	Standard	Found
Radish	Chinese White Winter	Seedway Inc	75	99
Radish	Formosa Giant Luo Buo	Baker Creek Heirloom Seeds	75	100
Radish	French Breakfast	New England Seed	75	96
Radish	German Giant	Seedway LLC/Olds	75	85
Radish	Scarlet Globe	The Charles C. Hart Seed Company	75	62 *
Rutabaga	American Purple Top	Comstock, Ferre and Company	75	83
Rutabaga	American Purple Top	Seedway Inc	75	94
Rutabaga	Larentian	New England Seed	75	85
Sage	Broadleaf	New England Seed	60	60
Spinach	7-Green	New England Seed	60	91
Spinach	Baby Leaf	Plantation Products Inc. / NK	60	78
Spinach	Bloomsdale	Botanical Interests Inc.	60	87
Spinach	Bloomsdale	Seedway LLC/Olds	60	73
Spinach	Bloomsdale	The Charles C. Hart Seed Company	60	83
Spinach	Bloomsdale Longstanding	The Page Seed Company	60	81
Spinach	Dolce Vita F1	Seeds of Change	60	86
Squash	Black Beauty Zucchini	New England Seed	75	96
Squash	Blue Hubbard	The Charles C. Hart Seed Company	75	61
Squash	Dark Green Zucchini	Plantation Products LLC/Ferry-Morse	75	18 *
Squash	Early Crookneck	The Charles C. Hart Seed Company	75	97
Squash	Early Prolific Straightneck	Burpee Garden Products Co.	75	95
Squash	Early Summer Crookneck	New England Seed	75	91
Squash	Speckled Hound	New England Seed	75	92
Squash	Table Queen Acorn	New England Seed	75	95
Squash	Table Queen Acorn	The Charles C. Hart Seed Company	75	94
Squash	Vegetable Spaghetti	Burpee Garden Products Co.	75	98
Squash	Waltham Butternut	Livingston Seed Company	75	95
Squash	Waltham Butternut	New England Seed	75	84
Squash	Waltham Butternut	The Charles C. Hart Seed Company	75	83
Squash	Zucchini Verde DiMilano	New England Seed/La Semiorto Sementi	75	68
Squash	Zucchini Dark	Livingston Seed Company	75	83
Swiss chard	Bright Lights	Seedway Inc	65	89
Swiss chard	Fordhook	Seeds of Change	65	50 *
Swiss chard	Fordhook Giant	Botanical Interests Inc.	65	67
Swiss chard	Lucullus	The Charles C. Hart Seed Company	65	90
Swiss chard	Rhubarb	New England Seed	65	85
Tomatillo	Verde	New England Seed	50	63
Tomato	Better Boy VFN	New England Seed	75	86
Tomato	Burpee's Big Boy	New England Seed	75	87
Tomato	Cherokee Purple	Burpee Garden Products Co.	75	81
Tomato	Crimson Cushion Beefsteak	Livingston Seed Company	75	81
Tomato	Marglobe	The Charles C. Hart Seed Company	75	66

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

Plant	Cultivar	Seed Company	Standard	Found
Tomato	Marmando	New England Seed/La Semiorto Sementi	75	83
Tomato	Pink Oxheart	New England Seed	75	68
Tomato	Porterhouse Hybrid	Burpee Garden Products Co.	75	76
Tomato	Red Cherry	Plantation Products LLC/Ferry-Morse	75	88
Tomato	Roma	New England Seed	75	86
Tomato	Roma VF	The Charles C. Hart Seed Company	75	92
Tomato	Rutgers	Livingston Seed Company	75	82
Tomato	Rutgers	The Page Seed Company	75	89
Tomato	San Marzano 2	New England Seed/La Semiorto Sementi	75	92
Turnip	Purple Top White Globe	Seedway Inc	80	98
Turnip	Purple Top White Globe	The Page Seed Company	80	97
Turnip	Seven Top	The Page Seed Company	80	95
Watermelon	Black Diamond	Livingston Seed Company	70	35 *
Watermelon	Charleston Gray	The Charles C. Hart Seed Company	70	85
Watermelon	Crimson Sweet	New England Seed	70	89
Watermelon	Sugar Baby	The Charles C. Hart Seed Company	70	86

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
Baker Creek Heirloom Seeds	15	80	20
Botanical Interests Inc.	15	100	0
Burpee Garden Products Co.	26	85	15
Comstock, Ferre and Company	23	87	13
Livingston Seed Company	25	88	12
New England Seed	65	88	12
New England Seed/La Semiorto Sementi	21	76	24
Plantation Products Inc. / NK	11	91	9
Plantation Products LLC/Ferry-Morse	12	83	17
Seeds of Change	12	83	17
Seedway Inc	19	95	5
Seedway LLC/Olds	10	100	0
The Charles C. Hart Seed Company	46	87	13
The Page Seed Company	15	100	0

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 Germination	Average Germination
Artichoke	2	60	73
Asparagus	1	70	76
Bean	18	70	60
Bean, lima	3	70	22
Beet	13	65	79
Broccoli	11	75	80
Broccoli raab	3	75	68
Brussels sprouts	5	70	75
Cabbage	9	75	76
Cantaloupe	8	75	80
Carrot	5	55	71
Cauliflower	8	75	83
Celeriac	1	55	3
Celery	2	55	31
Chicory	3	65	82
Chinese cabbage	5	75	89
Collards	4	80	88
Corn	13	75	83
Cornsalad	4	70	62
Cress	2	75	97
Cucumber	12	80	91
Dill	9	60	67
Eggplant	8	60	48
Endive	6	70	72
Kale	8	75	93
Kohlrabi	5	75	94
Leek	6	60	71
Lettuce	25	80	85
Mustard	5	75	87
New Zealand Spinach	1	40	32
Okra	3	50	70
Onion	8	70	82
Parsley	7	60	72
Parsnip	3	60	71
Pea	7	80	86
Pepper	14	55	53
Pumpkin	7	75	80
Radish	8	75	90
Rutabaga	3	75	87
Sage	1	60	60
Spinach	7	60	83
Squash	15	75	83
Swiss chard	5	65	76
Tomatillo	1	50	63
Tomato	14	75	83
Turnip	3	80	97
Watermelon	4	70	74

Table 4. Germination and purity of lawn seed. Purity Claimed =Pur C; Purity Found =Pur F; Variance =Var; Tolerance =Tol; Germination Claimed (Germ C); Germination Found (Germ F); H= Hard seed, did not absorb water. * = Does not meet label claim.

Seed Company	Seed Mixture	Pur C	Pur F	Var	Tol	Germ C	Germ F
New England Seed	<i>Contractor Lawn Seed Mix</i>						
	Annual Ryegrass	74.90	73.01	-1.89	2.83	90	93
	Creeping Red Fescue	24.63	26.52	1.89	2.83	85	89
New England Seed	<i>Southern New England Pasture Mix</i>						
	Tonga Tetraploid Perennial Ryegrass	34.58	31.46	-3.12	5.44	90	93
	Climax Timothy	44.91	49.31	4.40	4.19	85	99
	Orchardgrass	9.84	8.20	-1.44	2.48	85	92
	Ladino Clover	9.98	10.75	0.77	2.20	90	91+2H
Southern States Cooperative	<i>Southern NE Perennial Ryegrass Mixture</i>						
	PI Perennial Ryegrass	32.98				90	83
	Buccaneer Perennial Ryegrass	32.01				90	83
	M B Perennial Ryegrass total ryegrass	32.01 97.00				90	83
		99.55	2.55	0.93			
Southern States Cooperative	<i>Landscapers Sun and Shade Mixture</i>						
	Kentucky Bluegrass	17.00	17.94	0.94	2.07	80	81
	Perennial Ryegrass	58.20	61.44	3.24	4.19	90	91
	Boreal Creeping Red Fescue	9.70				85	74 *
	Frazer Chewings Fescue	9.70				85	74 *
	total fine fescue	19.40	18.92	-0.48	2.76		
Kent Nutrition Group Inc	<i>Blue Seal Early Green Lawn Mixture</i>						
	Kentucky Bluegrass	13.24	11.78	-1.46	1.68	80	84
	Perennial Ryegrass	47.84	56.21			85	88
	Annual Ryegrass	9.85	6.33			90	88
	total ryegrass	57.69	62.54	4.85	3.70		
	Creeping Red Fescue	24.32	21.71	-2.61	3.05	85	83
Kent Nutrition Group Inc.	<i>Blue Seal Classic Lawn Mixture</i>						
	Alene Kentucky Bluegrass	26.64	32.30	5.66	3.19	85	90
	Accent Perennial Ryegrass	25.82				90	91
	Top Hat 2 Perennial Ryegrass	23.25				90	91
	total ryegrass	49.07	45.31	-3.76	5.11		
	Boreal Creeping Red Fescue	22.54	21.53	-1.01	3.54	91	84
Kent Nutrition Group Inc.	<i>Blue Seal Shady Lawn Mixture</i>						
	Rugby II Kentucky Bluegrass	4.94	4.02	-0.92	0.97	85	91
	Gator 3 Perennial Ryegrass	24.36	26.49	2.13	4.84	90	87
	Chewings Fescue	19.87				85	77
	Boreal Creeping Red Fescue	34.29				85	77
	total fine fescue Rough Bluegrass	54.16 14.87	54.93 13.01	0.77 -1.86	3.83 1.66	* 85	94

Table 5. Germination and purity of crop seed. * = Does not meet label claim.

Seed Company	Seed	Purity Claim	Purity Found	Germ Claim	Germ Found	
Kings Agriseeds LLC	Rye	98.00	99.89	80	77	
W.I. Miller and Sons	Malabar Wheat	99.50	100.00	90	93	
V-Town Ag Services	Rye	99.12	99.87	86	89	
Southern States Coop	Rye	98.00	99.44	75	78	
Michigan Agricultural Commodities Inc	Wheat	97.00	99.75	85	94	
Michigan Agricultural Commodities Inc	Rye	97.00	99.64	89	82	
Crop Production Services	Rye	99.97	99.98	91	74	*
Cooperative Feed Deals	Rye	98.00	99.83	85	96	

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