

# Seed Germination and Purity Analysis

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# SEED GERMINATION AND PURITY ANALYSIS 2015

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Official samples of 323 vegetable, 5 lawn, and 9 crop seeds were collected by inspectors from the Bureau of Regulation and Inspection of the Connecticut Department of Agriculture for testing in 2015. 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. 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 323 vegetable seed samples tested, 20 did not meet their label claims for germination. Seed samples were examined for prohibited noxious weed seeds and no vegetable samples contained noxious 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. One of the five lawn seed samples tested met label claims for both purity and germination. Four of the five lawn seed samples tested contained at least one component which failed to meet the purity claim. None of the 2015 lawn samples contained seeds of noxious weeds.

Table 5 shows the results of purity and germination tests on crop seed samples. All of the samples passed within tolerance for the purity test with the exception of one sample which had no purity claim. Three of the nine samples failed to meet the germination claim following a retest. Seed samples were examined for prohibited noxious weed seeds and nine *Rumex* sp. seeds were found in a purity sample resulting in a noxious weed sample examination which yielded 43 *Rumex* sp. seeds. Upon calculation, these results were found to be within tolerance for noxious weed allowance.

Pamela Sletten and Lindsay Patrick performed the testing following the Association of Official Seed Analysts (AOSA) rules for testing seeds. Dr. Yonghao Li 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.

Table 1. Germination of vegetable seeds.

**Standard:** Provided by the rules and regulations of the Federal Seed Act. **Found:** Average percentage of germinated seeds. **H:** Seeds hard because they did not absorb water due to an impermeable seed coat.

**\***: Does not meet label claim. **Blue:** Did not meet standard for germination, but passed test within acceptable tolerance. **Red:** Failed to meet standard for germination, tolerance exceeded.

Plant	Cultivar	Seed Company	Standard (%)	Found (%)
Artichoke	Green Globe	Baker Creek Heirloom Seed Co.	60	73
<b>Asparagus</b>	<b>Precoce D'Argenteuil</b>	<b>Baker Creek Heirloom Seed Co.</b>	<b>70</b>	<b>65</b>
<b>Asparagus</b>	<b>Mary Washington</b>	<b>Livingston Seed Co.</b>	<b>70</b>	<b>51</b> *
Asparagus	Mary Washington	Plantation Products LLC (NK Lawn and Garden)	70	83
Bean	Stringless Green Pod	The Charles C. Hart Seed Co.	70	99
<b>Bean</b>	<b>Dwarf Horticultural</b>	<b>The Charles C. Hart Seed Co.</b>	<b>70</b>	<b>69</b>
Bean	French Horticultural	New England Seed Co.	70	88
<b>Bean</b>	<b>Cannellino</b>	<b>La Semiorto Sementi</b>	<b>70</b>	<b>59</b>
Bean	Gold Rush Yellow Wax	Livingston Seed Co.	70	75
Bean	Blue Lake 274	Seedway LLC (Agway)	70	73
Bean	Tendergreen	Seedway LLC (Olds)	70	93
Bean	Kentucky Dreamer	Seedway LLC	70	86
Bean	Tendergreen Improved	Plantation Products LLC (Ferry Morse)	70	91
Bean	Roma II	Botanical Interests Inc.	70	83
<b>Bean</b>	<b>Bush Blue Lake 47</b>	<b>Burpee Garden Products Co.</b>	<b>70</b>	<b>52</b> *
Bean	Blue Lake 274	Plantation Products LLC	70	74 + 1H
Bean	Royal Burgundy	Plantation Products LLC (NK Lawn and Garden)	70	75
Bean	Top Crop	Plantation Products LLC (NK Lawn and Garden)	70	80
<b>Bean</b>	<b>Maxibel French Filet</b>	<b>Seeds of Change</b>	<b>70</b>	<b>68</b>
<b>Bean</b>	<b>Golden Wax Improved</b>	<b>Burpee Garden Products Co.</b>	<b>70</b>	<b>64</b>
Bean, Lima	Henderson Bush	Seedway LLC (Agway)	70	82 + 1H
Bean, Lima	Henderson	The Charles C. Hart Seed Co.	70	84 + 1H
Bean, Lima	Fordhook 242	New England Seed Co.	70	90
Bean, Pole	Kentucky Wonder Green	New England Seed Co.	70	88
Beet	Detroit Dark Red	The Charles C. Hart Seed Co.	65	85
Beet	Red Ace F1	New England Seed Co.	65	88
Beet	Bietola Da Orto D'Egitto	La Semiorto Sementi	65	84
Beet	Early Wonder	Livingston Seed Co.	65	85
Beet	Chioggia Guardmark	Seedway LLC (Agway)	65	85
Beet	Early Wonder Tall Top	Seedway LLC (Olds)	65	86
Beet	Early Wonder Smooth Leaf	Seedway LLC	65	95
Beet	Detroit Dark Red	Plantation Products LLC (Ferry Morse)	65	84
Beet	Bull's Blood	Botanical Interests Inc.	65	92
Beet	Detroit's Best Hybrid	Burpee Garden Products Co.	65	67
Beet	Early Wonder Tall Top	Plantation Products LLC	65	81
Beet	Ruby Queen	Plantation Products LLC (NK Lawn and Garden)	65	70
Broccoli	Calabrese	The Charles C. Hart Seed Co.	75	77

Plant	Cultivar	Seed Company	Standard (%)	Found (%)	
Broccoli	Early Purple Sprouting	Baker Creek Heirloom Seed Co.	70	89	
Broccoli	Raab Early Pugliest	New England Seed Co.	75	79	
Broccoli	Ricco Difarno	La Semiorto Sementi	75	87	
Broccoli	Green Sprouting Calabrese	Livingston Seed Co.	75	87	
Broccoli	Green Sprouting	Seedway LLC (Olds)	75	93	
<b>Broccoli</b>	<b>Di Cicco</b>	<b>Botanical Interests Inc.</b>	<b>75</b>	<b>66</b>	
Broccoli	Raab Spring	Burpee Garden Products Co.	75	92	
Broccoli	Waltham 29	Plantation Products LLC (NK Lawn and Garden)	75	89	
Broccoli	Early Green	Seeds of Change	75	92	
Brussels	Long Island Improved	The Charles C. Hart Seed Co.	70	97	
Brussels	Catskill	Baker Creek Heirloom Seed Co.	70	89	
Brussels	Long Island Improved	New England Seed Co.	70	81	
Brussels	Long Island Improved	Livingston Seed Co.	70	72	
Brussels	Catskill	Seedway LLC (Agway)	70	75	
<b>Brussels</b>	<b>Long Island Improved</b>	<b>Burpee Garden Products Co.</b>	<b>70</b>	<b>24</b>	<b>*</b>
Cabbage	Copenhagen	The Charles C. Hart Seed Co.	75	85	
Cabbage	Perfection Drumhead				
Cabbage	Savoy	Baker Creek Heirloom Seed Co.	75	90	
<b>Cabbage</b>	<b>Danish Ball Head</b>	<b>New England Seed Co.</b>	<b>75</b>	<b>50</b>	<b>*</b>
Cabbage	Di Napoli Tardivo	La Semiorto Sementi	75	90	
Cabbage	Premium Flat Dutch Late	Livingston Seed Co.	75	97	
Cabbage	Stonehead	Seedway LLC (Agway)	75	95	
Cabbage	Red Acre	Seedway LLC (Olds)	75	90	
Cabbage	Copenhagen Market	Botanical Interests Inc.	75	97	
Cabbage	Earliana	Burpee Garden Products Co.	75	94	
<b>Cabbage</b>	<b>Early Golden Acre</b>	<b>Plantation Products LLC (NK Lawn and Garden)</b>	<b>75</b>	<b>48</b>	<b>*</b>
Cabbage	Michihili	The Charles C. Hart Seed Co.	75	98	
Cabbage	Bok Choi	The Charles C. Hart Seed Co.	75	93	
<b>Cabbage</b>	<b>Michihili</b>	<b>New England Seed Co.</b>	<b>75</b>	<b>76</b>	
Cabbage	Pak Choi	Seedway LLC (Agway)	75	96	
Cabbage	Baby Choi	Burpee Garden Products Co.	75	98	
Carrot	Rainbow	The Charles C. Hart Seed Co.	55	63	
Carrot	Kuroda Long 8 Inch	Baker Creek Heirloom Seed Co.	55	82	
Carrot	Danvers Half Long	New England Seed Co.	55	82	
Carrot	Imperator	Livingston Seed Co.	55	56	

Plant	Cultivar	Seed Company	Standard (%)	Found (%)	
Carrot	Yellowstone	Seedway LLC (Agway)	55	97	
Carrot	Danvers #126	Plantation Products LLC (Ferry Morse)	55	80	
Carrot	Touchon	Burpee Garden Products Co.	55	76	
Carrot	Scarlet Nantes	Plantation Products LLC	55	85	
Carrot	Chantenay Red Cored	Plantation Products LLC (NK Lawn and Garden)	55	71	
Cauliflower	Early Snowball	The Charles C. Hart Seed Co.	75	83	
Cauliflower	Early Snowball	New England Seed Co.	75	59	
<b>Cauliflower</b>	<b>Romaneso Natalino</b>	<b>La Semiorto Sementi</b>	<b>75</b>	<b>76</b>	
<b>Cauliflower</b>	<b>Snow Crown</b>	<b>Seedway LLC (Agway)</b>	<b>75</b>	<b>68</b>	
Cauliflower	Vanilla Sky Hybrid	Burpee Garden Products Co.	75	89	
<b>Cauliflower</b>	<b>Snowball Y</b>	<b>Plantation Products LLC (NK Lawn and Garden)</b>	<b>75</b>	<b>64</b>	
<b>Celery</b>	<b>Giant Pascal</b>	<b>The Charles C. Hart Seed Co.</b>	<b>55</b>	<b>7</b>	*
<b>Celery</b>	<b>Tall Utah</b>	<b>New England Seed Co.</b>	<b>55</b>	<b>37</b>	*
Celery	Tall Utah 52/70 Improved	Botanical Interests Inc.	55	90	
Celery	Red Venture	Seeds of Change	55	67	
Chicory	Catalogna	New England Seed Co.	65	87	
Collards	Georgia Green	The Charles C. Hart Seed Co.	80	87	
<b>Collards</b>	<b>Georgia</b>	<b>New England Seed Co.</b>	<b>80</b>	<b>73</b>	
Collards	Georgia	Burpee Garden Products Co.	80	85	
Collards	Col Silvestre	Seeds of Change	80	89	
Corn	Tennessee Red Cob	Baker Creek Heirloom Seed Co.	75	94	
Corn Sweet	Golden Cross Bantam	The Charles C. Hart Seed Co.	75	92	
Corn Sweet	Honey and Cream	The Charles C. Hart Seed Co.	75	95	
Corn Sweet	Kandy Korn	The Charles C. Hart Seed Co.	75	88	
Corn Sweet	Trinity	New England Seed Co.	75	77	
Corn Sweet	Bodacious	Seedway LLC (Agway)	75	98	
Corn Sweet	Silver Queen	Seedway LLC	75	97	
Corn Sweet	Ruby Queen Hybrid	Burpee Garden Products Co.	75	88	
Corn Sweet	Bi-Licious	Burpee Garden Products Co.	75	86	
Corn Sweet	Early Gold Bantam	Plantation Products LLC (NK Lawn and Garden)	75	89	
Corn Sweet	Silver N' Gold Hybrid	Plantation Products LLC (NK Lawn and Garden)	75	96	
Corn Sweet	Golden Bantam	Seeds of Change	75	79	
Cornsalad	Verte A Coeur Plein 2	Baker Creek Heirloom Seed Co.	70	86	
Cress	Garden	Baker Creek Heirloom Seed Co.	75	99	
Cucumber	Boston Pickling	The Charles C. Hart Seed Co.	80	88	
Cucumber	Marketmore 76	The Charles C. Hart Seed Co.	80	94	
Cucumber	Homemade Pickle	New England Seed Co.	80	96	
<b>Cucumber</b>	<b>Burpless English Telegraph</b>	<b>New England Seed Co.</b>	<b>80</b>	<b>79</b>	
Cucumber	Lungo Tortarello Chiaro	La Semiorto Sementi	80	80	
Cucumber	Boston Pickling	Livingston Seed Co.	80	94	
Cucumber	Marketmore 76	Seedway LLC (Agway)	80	98	

<b>Plant</b>	<b>Cultivar</b>	<b>Seed Company</b>	<b>Standard (%)</b>	<b>Found (%)</b>	
Cucumber	Wisconsin SMR 58	Seedway LLC	80	99	
Cucumber	Straight Eight	Burpee Garden Products Co.	80	94	
Cucumber	Marketmore 76	Plantation Products LLC (NK Lawn and Garden)	80	88	
Cucumber	Sumter	Seeds of Change	80	94	
Dill	Bouquet	The Charles C. Hart Seed Co.	60	88	
Dill	Elephant	Baker Creek Heirloom Seed Co.	60	79	
Dill	Bouquet	New England Seed Co.	60	78	
Dill	Dukat	Seedway LLC (Agway)	60	84	
Dill	Mammoth	Seedway LLC (Olds)	60	82	
Dill	Tetra	Burpee Garden Products Co.	60	94	
Dill	Bouquet	Plantation Products LLC (NK Lawn and Garden)	60	80	
Dill		Seeds of Change	60	86	
Eggplant	Black Beauty	The Charles C. Hart Seed Co.	60	64	
Eggplant	Long Purple	New England Seed Co.	60	73	
Eggplant	Black Beauty	Livingston Seed Co.	60	66	
Eggplant	High Bush Select	Seedway LLC (Agway)	60	71	
<b>Eggplant</b>	<b>Black Beauty</b>	<b>Plantation Products LLC (NK Lawn and Garden)</b>	<b>60</b>	<b>58</b>	
<b>Endive</b>	<b>Broadleaf</b>	<b>The Charles C. Hart Seed Co.</b>	<b>70</b>	<b>43</b>	*
Endive	Batavian Full Heart	New England Seed Co.	70	82	
Endive	Full Heart	Seedway LLC (Agway)	70	75	
Kale	Vates Blue Curled	The Charles C. Hart Seed Co.	75	92	
Kale	Russian Red	Baker Creek Heirloom Seed Co.	75	97	
Kale	Vates	New England Seed Co.	75	96	
Kale	Dwarf Blue Scotch Curled	Livingston Seed Co.	75	89	
Kale	Blue Scotch	Seedway LLC (Agway)	75	96	
Kale	Russian Red	Seedway LLC (Olds)	75	88	
Kale	Italian Lacinato	Botanical Interests Inc.	75	94	
Kale	Dwarf Blue Curled Vates	Burpee Garden Products Co.	75	90	
<b>Kale</b>	<b>Dinosaur</b>	<b>Seeds of Change</b>	<b>75</b>	<b>37</b>	*
<b>Kohlrabi</b>	<b>White Vienna</b>	<b>New England Seed Co.</b>	<b>75</b>	<b>70</b>	
<b>Kohlrabi</b>	<b>Early White Vienna</b>	<b>Livingston Seed Co.</b>	<b>75</b>	<b>70</b>	
Kohlrabi	White Vienna	Seedway LLC (Agway)	75	78	
Kohlrabi	Purple Vienna	Seedway LLC (Olds)	75	93	
Kohlrabi	Early White Vienna	Burpee Garden Products Co.	75	88	
Kohlrabi	Early White Vienna	Plantation Products LLC (NK Lawn and Garden)	75	87	
Leek	American Flag	The Charles C. Hart Seed Co.	60	89	
Leek	Bulgarian Giant	Baker Creek Heirloom Seed Co.	60	89	
Leek	America Broad Flag	New England Seed Co.	60	83	
Leek	American Flag	Livingston Seed Co.	60	87	
Lettuce	Buttercrunch	The Charles C. Hart Seed Co.	80	93	
Lettuce	Oakleaf	The Charles C. Hart Seed Co.	80	96	

<b>Plant</b>	<b>Cultivar</b>	<b>Seed Company</b>	<b>Standard (%)</b>	<b>Found (%)</b>	
Lettuce	Big Boston	Baker Creek Heirloom Seed Co.	80	97	
Lettuce	Paris Island Cos	New England Seed Co.	80	94	
Lettuce	Great Lakes	New England Seed Co.	80	100	
Lettuce	Black Seed Simpson	Livingston Seed Co.	80	99	
Lettuce	Prizehead	Seedway LLC (Agway)	80	97	
Lettuce	Deer Tongue Red	Seedway LLC (Olds)	80	95	
Lettuce	Black Seeded Simpson	Plantation Products LLC (Ferry Morse)	80	98	
Lettuce	Garnet Rose	Botanical Interests Inc.	80	93	
Lettuce	Iceberg A	Burpee Garden Products Co.	80	99	
Lettuce	Black Seeded Simpson	Plantation Products LLC	80	83	
<b>Lettuce</b>	<b>Rouge D'Hiver</b>	<b>Plantation Products LLC (NK Lawn and Garden)</b>	<b>80</b>	<b>3</b>	*
Lettuce	Black Seeded Simpson	Plantation Products LLC (NK Lawn and Garden)	80	98	
Lettuce	Buttercrunch	Plantation Products LLC (NK Lawn and Garden)	80	91	
Lettuce	Green Towers	Seeds of Change	80	84	
Lettuce	Redina	Seeds of Change	80	95	
Muskmelon	Delicious 5	The Charles C. Hart Seed Co.	75	78	
Muskmelon	Python-Western Shipper	New England Seed Co.	75	99	
Muskmelon	Hale's Best Jumbo	Livingston Seed Co.	75	91	
Muskmelon	Hale's Best Jumbo	Burpee Garden Products Co.	75	97	
Muskmelon	Hale's Best Jumbo	Plantation Products LLC (NK Lawn and Garden)	75	93	
Mustard	Japanese Giant	Baker Creek Heirloom Seed Co.	75	91	
Mustard	Red Giant	Burpee Garden Products Co.	75	98	
Mustard	Tendergreen	Plantation Products LLC (NK Lawn and Garden)	75	88	
Mustards	Southern Giant Curled	The Charles C. Hart Seed Co.	75	93	
Okra	Long Green	The Charles C. Hart Seed Co.	50	77	
Okra	Clemson Spineless	New England Seed Co.	50	72	
Okra	Clemson Spineless	Livingston Seed Co.	50	62	
Okra	Burgundy	Seedway LLC (Olds)	50	88	
Okra	Clemson Spineless	Burpee Garden Products Co.	50	91	
Okra	Clemson Spineless	Plantation Products LLC (NK Lawn and Garden)	50	54	
Onion	White Portugal	The Charles C. Hart Seed Co.	70	73	
Onion	Wethersfield Red	Baker Creek Heirloom Seed Co.	70	81	
<b>Onion</b>	<b>White Bunching</b>	<b>New England Seed Co.</b>	<b>70</b>	<b>66</b>	
Onion	Evergreen Bunching	Livingston Seed Co.	70	94	
Onion	Sweet Spanish	Seedway LLC (Agway)	70	75	
Onion	White Lisbon Bunching	Plantation Products LLC (Ferry Morse)	70	93	
Onion	White Lisbon	Botanical Interests Inc.	70	89	
<b>Onion</b>	<b>Tokyo Long White</b>	<b>Burpee Garden Products Co.</b>	<b>70</b>	<b>64</b>	
Onion	Granex Hybrid	Burpee Garden Products Co.	70	82	
Onion	White Lisbon Bunching	Plantation Products LLC	70	91	
Onion	White Lisbon Bunching	Plantation Products LLC (NK Lawn and Garden)	70	96	

Plant	Cultivar	Seed Company	Standard (%)	Found (%)	
Parsley	Plain Leaf	The Charles C. Hart Seed Co.	60	90	
Parsley	Giant of Italy	Baker Creek Heirloom Seed Co.	60	79	
Parsley	Moss Curled	New England Seed Co.	60	90	
Parsley	Italian	Livingston Seed Co.	60	88	
Parsley	Italian Plain Leaf	Seedway LLC (Agway)	60	88	
Parsley	Single Italian Flat	Plantation Products LLC (Ferry Morse)	60	81	
Parsley	Moss Curled	Botanical Interests Inc.	60	65	
Parsley	Triple Curled	Burpee Garden Products Co.	60	78	
<b>Parsley</b>	<b>Italian Flat Leaf</b>	<b>Plantation Products LLC</b>	<b>60</b>	<b>54</b>	
Parsley	Italian Flat Leaf	Plantation Products LLC (NK Lawn and Garden)	60	60	
Parsley	Italian Flat Leaf	Seeds of Change	60	77	
Parsnip	Hollow Crown	The Charles C. Hart Seed Co.	60	75	
<b>Parsnip</b>	<b>Harris Model</b>	<b>Baker Creek Heirloom Seed Co.</b>	<b>60</b>	<b>3</b>	*
Parsnip	All American	New England Seed Co.	60	81	
Parsnip	Hollow Crown	Livingston Seed Co.	60	65	
Parsnip	All American	Seedway LLC (Agway)	60	73	
Parsnip	All American	Plantation Products LLC (NK Lawn and Garden)	60	84	
Pea	Oregon Sugar Pod II	The Charles C. Hart Seed Co.	80	88	
<b>Pea</b>	<b>Thomas Laxton</b>	<b>The Charles C. Hart Seed Co.</b>	<b>80</b>	<b>74 + 1H</b>	
Pea	Alaska	Baker Creek Heirloom Seed Co.	80	96 + 1H	
<b>Pea</b>	<b>Sugar Daddy</b>	<b>New England Seed Co.</b>	<b>80</b>	<b>72 + 10H</b>	
Pea	Wanda	Seedway LLC (Agway)	80	91 + 4H	
<b>Pea</b>	<b>Progres #9</b>	<b>Seedway LLC (Olds)</b>	<b>80</b>	<b>77 + 6H</b>	
Pea	Sugar Snap	Seedway LLC	80	89 + 9H	
Pea	Oregon Sugar Pod II	Burpee Garden Products Co.	80	92 + 5H	
Pea	Burpeeana Early	Burpee Garden Products Co.	80	87	
Pea	Alaska	Plantation Products LLC (NK Lawn and Garden)	80	89	
Pea	Sugar Pod 2 Snow	Seeds of Change	80	94	
Pepper	California Wonder	The Charles C. Hart Seed Co.	55	68	
Pepper	Large Red Cayenne	The Charles C. Hart Seed Co.	55	64	
Pepper	Early Jalapeno	New England Seed Co.	55	76	
Pepper	Calwonder	New England Seed Co.	55	55	
Pepper	Cubanelle	New England Seed Co.	55	70	
<b>Pepper</b>	<b>Red Mercury</b>	<b>Livingston Seed Co.</b>	<b>55</b>	<b>4</b>	*
Pepper	Hungarian Yellow Wax	Livingston Seed Co.	55	61	
<b>Pepper</b>	<b>Yummy</b>	<b>Seedway LLC (Agway)</b>	<b>55</b>	<b>53</b>	
Pepper	California Wonder	Plantation Products LLC (Ferry Morse)	55	71	
Pepper	California Wonder	Burpee Garden Products Co.	55	64	
Pepper	Serrano Chili	Plantation Products LLC	55	78	
Pepper	Jalapeno Chili	Plantation Products LLC (NK Lawn and Garden)	55	80	
Pepper	Sweet Banana	Plantation Products LLC (NK Lawn and Garden)	55	66	



<b>Plant</b>	<b>Cultivar</b>	<b>Seed Company</b>	<b>Standard (%)</b>	<b>Found (%)</b>	
Pumpkin	Connecticut Field	The Charles C. Hart Seed Co.	75	99	
Pumpkin	Small Sugar	The Charles C. Hart Seed Co.	75	81	
Pumpkin	Big Max	The Charles C. Hart Seed Co.	75	85	
Pumpkin	Jack Be Little	The Charles C. Hart Seed Co.	75	81	
Pumpkin	Mr. Fugly	New England Seed Co.	75	97	
Pumpkin	Porcelain Doll	New England Seed Co.	75	89	
Pumpkin	Indian Doll	New England Seed Co.	75	88	
<b>Pumpkin</b>	<b>Baby Pam</b>	<b>New England Seed Co.</b>	<b>75</b>	<b>60</b>	
Pumpkin	Spookie	Plantation Products LLC (NK Lawn and Garden)	75	100	
Radish	Cherry Belle	The Charles C. Hart Seed Co.	75	97	
<b>Radish</b>	<b>Long Black Spanish</b>	<b>Baker Creek Heirloom Seed Co.</b>	<b>75</b>	<b>66</b>	
Radish	White Icicle	New England Seed Co.	75	93	
Radish	Flamboyant 3	La Semiorto Sementi	75	97	
Radish	Watermelon	Livingston Seed Co.	75	81	
Radish	Champion	Seedway LLC (Agway)	75	98	
Radish	German Giant	Seedway LLC (Olds)	75	83	
Radish	Champion	Plantation Products LLC (Ferry Morse)	75	95	
Radish	French Breakfast	Botanical Interests Inc.	75	94	
Radish	French Dressing	Burpee Garden Products Co.	75	97	
Radish	Cherry Belle	Plantation Products LLC	75	94	
Radish	White Icicle	Plantation Products LLC (NK Lawn and Garden)	75	92	
Radish	Cherry	Seeds of Change	75	93	
<b>Rutabaga</b>	<b>Swede Ostgota II Improved Purple Top</b>	<b>Baker Creek Heirloom Seed Co.</b>	<b>75</b>	<b>47</b>	<b>*</b>
<b>Rutabaga</b>	<b>Yellow</b>	<b>New England Seed Co.</b>	<b>75</b>	<b>48</b>	<b>*</b>
Rutabaga	American Purple Top	Seedway LLC (Agway)	75	87	
Rutabaga	American Purple Top	Botanical Interests Inc.	75	89	
Sage		Livingston Seed Co.	60	67	
Sage	Broad Leaf	Plantation Products LLC (NK Lawn and Garden)	60	88	
<b>Sage</b>	<b>Garden Mammoth Sandwich Island</b>	<b>Seeds of Change</b>	<b>60</b>	<b>50</b>	
<b>Salsify</b>	<b>Island</b>	<b>Baker Creek Heirloom Seed Co.</b>	<b>65</b>	<b>45</b>	<b>*</b>
Spinach	Bloomsdale	The Charles C. Hart Seed Co.	60	86	
Spinach	New Zealand	The Charles C. Hart Seed Co.	40	74	
Spinach	Amsterdam Prickly Seeded	Baker Creek Heirloom Seed Co.	60	95	
<b>Spinach</b>	<b>7-Green</b>	<b>New England Seed Co.</b>	<b>60</b>	<b>56</b>	
Spinach	Bloomsdale Long Standing	Livingston Seed Co.	60	72	
Spinach	Winter Bloomsdale	Seedway LLC (Agway)	60	77	
Spinach	Bloomsdale	Seedway LLC (Olds)	60	89	
<b>Spinach</b>	<b>Big Ruffles Hybrid</b>	<b>Burpee Garden Products Co.</b>	<b>60</b>	<b>50</b>	
Spinach	Correnta Hybrid	Plantation Products LLC (NK Lawn and Garden)	60	69	
Spinach	Convair F1	Seeds of Change	60	64	

Plant	Cultivar	Seed Company	Standard (%)	Found (%)	
Squash	Dark Green Zucchini	The Charles C. Hart Seed Co.	75	94	
Squash	Straightneck	The Charles C. Hart Seed Co.	75	96	
Squash	Buttercup Burgess	The Charles C. Hart Seed Co.	75	85	
Squash	Waltham Butternut	The Charles C. Hart Seed Co.	75	75	
Squash	Blue Hubbard	The Charles C. Hart Seed Co.	75	75	
Squash	Black Beauty Zucchini	New England Seed Co.	75	86	
Squash	Waltham Butternut	New England Seed Co.	75	90	
Squash	Early Prolific Straightneck	New England Seed Co.	75	100	
Squash	Cocozelle	New England Seed Co.	75	85	
Squash	Adora	New England Seed Co.	75	97	
<b>Squash</b>	<b>Tondo Di Piacenza</b>	<b>La Semiorto Sementi</b>	<b>75</b>	<b>35</b>	*
Squash	Puritan Butternut	Seedway LLC	75	86	
Squash	Early Prolific Straightneck	Seedway LLC	75	99	
Squash	Black Beauty Zucchini	Seedway LLC	75	75	
Squash	Early Prolific Straightneck	Burpee Garden Products Co.	75	91	
<b>Squash</b>	<b>Dark Green Zucchini</b>	<b>Plantation Products LLC</b>	<b>75</b>	<b>56</b>	*
<b>Squash</b>	<b>Dark Green Zucchini</b>	<b>Plantation Products LLC (NK Lawn and Garden)</b>	<b>75</b>	<b>30</b>	*
<b>Squash</b>	<b>Cocozelle</b>	<b>Plantation Products LLC (NK Lawn and Garden)</b>	<b>75</b>	<b>71</b>	
Squash	Spaghetti	Seeds of Change	75	99	
Swiss Chard	Oriole Orange	Baker Creek Heirloom Seed Co.	65	72	
<b>Swiss Chard</b>	<b>El Dorado</b>	<b>New England Seed Co.</b>	<b>65</b>	<b>39</b>	*
Swiss Chard	Rhubarb	Livingston Seed Co.	65	76	
Swiss Chard	Fordhook Giant	Burpee Garden Products Co.	65	80	
Swiss Chard	Fordhook Giant	Plantation Products LLC (NK Lawn and Garden)	65	86	
<b>Swiss Chard</b>	<b>Foodhook</b>	<b>Seeds of Change</b>	<b>65</b>	<b>60</b>	
Tomato	Large Red Cherry	The Charles C. Hart Seed Co.	75	89	
<b>Tomato</b>	<b>Mortgage Lifter</b>	<b>New England Seed Co.</b>	<b>85</b>	<b>57</b>	*
Tomato	Celebrity	New England Seed Co.	75	89	
Tomato	S. Marzano Nano	La Semiorto Sementi	75	81	
Tomato	Red Cherry Large	Livingston Seed Co.	75	94	
Tomato	Roma	Livingston Seed Co.	55	95	
Tomato	Sweetie	Seedway LLC (Olds)	75	87	
Tomato	Beefsteak	Plantation Products LLC (Ferry Morse)	75	93	
Tomato	Roma	Burpee Garden Products Co.	75	91	
Tomato	Beefsteak	Plantation Products LLC (NK Lawn and Garden)	75	88	
Tomato	Large Red Cherry	Plantation Products LLC (NK Lawn and Garden)	75	92	
Tomato	Early Girl	New England Seed Co.	75	99	
Tomato	Verde	New England Seed Co.	50	64	
Tomato	Purple	Burpee Garden Products Co.	50	66	
<b>Turnip</b>	<b>Ideal Purple Top Milan</b>	<b>Baker Creek Heirloom Seed Co.</b>	<b>80</b>	<b>77</b>	

<b>Plant</b>	<b>Cultivar</b>	<b>Seed Company</b>	<b>Standard (%)</b>	<b>Found (%)</b>
Turnip	Viola F.F.	La Semiorto Sementi	80	92
Turnip	Purple Top White Globe	Seedway LLC (Olds)	80	89
Turnip	Purple Top White Globe	Burpee Garden Products Co.	80	87
Turnip	Purple Top White Globe	Plantation Products LLC (NK Lawn and Garden)	80	90
Watermelon	Sugar Baby	The Charles C. Hart Seed Co.	70	89
Watermelon	Charleston Grey	The Charles C. Hart Seed Co.	70	96
Watermelon	Crimson Sweet	New England Seed Co.	70	86
Watermelon	Charleston Grey	New England Seed Co.	70	88

Table 2. Number of vegetable seed samples submitted for germination testing and the percentage that met or failed label claims.

<b>Seed Company</b>	<b>Number of Samples</b>	<b>Meeting Claims (%)</b>	<b>Not Meeting Claims (%)</b>
Baker Creek Heirloom Seeds	24	92	8
Botanical Interests Inc.	11	100	0
Burpee Garden Products Co.	33	94	6
La Semiorto Sementi	10	90	10
Livingston Seed Company	26	92	8
New England Seed Company	52	90	10
Plantation Products LLC	9	89	11
Plantation Products LLC (Ferry-Morse)	9	100	0
Plantation Products LLC (NK Lawn and Garden)	36	92	8
Seeds of Change	17	94	6
Seedway LLC	8	100	0
Seedway LLC (Agway)	24	100	0
Seedway LLC (Olds)	14	100	0
The Charles C. Hart Seed Company	50	96	4

Table 3. Number of samples tested, standard germination, and average germination found listed by crop. Standards are provided for by the rules and regulations of the Federal Seed Act.

<b>Plant</b>	<b>Samples Tested</b>	<b>Standard Germination (%)</b>	<b>Average Germination (%)</b>
Artichoke	1	60	73
Asparagus	3	70	66
Bean	16	70	77
Bean, lima	3	70	85
Bean, pole	1	65	85
Beet	12	65	84
Broccoli	8	75	85
Broccoli raab	2	75	86
Brussels sprouts	6	70	73
Cabbage	10	75	84
Carrot	9	55	77
Cauliflower	6	75	73
Celery	4	55	50
Chicory	1	65	87
Chinese cabbage	5	75	92
Collards	4	80	84
Corn	12	75	90
Cornsalad	1	70	86
Cress	1	75	99
Cucumber	11	80	91
Dill	8	60	84
Eggplant	5	60	66
Endive	3	70	67
Kale	9	75	87
Kohlrabi	6	75	81
Leek	4	60	87
Lettuce	17	80	89
Muskmelon	5	75	92
Mustard	4	75	93
New Zealand Spinach	1	40	74
Okra	6	50	74
Onion	11	70	82
Parsley	11	60	77
Parsnip	6	60	64
Pea	11	80	86
Pepper	13	55	62
Pumpkin	9	75	87
Radish	13	75	91
Rutabaga	4	75	68
Sage	3	60	68
Salsify	1	65	45
Spinach	9	60	73
Squash	19	75	80
Swiss chard	6	65	69
Tomatillo	2	50	65
Tomato	12	75	88
Turnip	5	80	87
Watermelon	4	70	90

Table 4. Germination and purity of lawn seed.

**Pur C:** Purity Claim; **Pur F:** Purity Found; **Var:** Variance; **Tol:** Tolerance; **Germ C:** Germination Claimed; **Germ F:** Germination Found; **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 (%)	
Southern States Coop Inc.	<i>Fall Seeding Mixture</i>							
	Kentucky Bluegrass (VNS)	24.91	26.25	1.34	2.90	85	90	
	ASP0112 Perennial Ryegrass	24.63						
	ASP6001 Perennial Ryegrass	24.35						
	ASP1001 Perennial Ryegrass	24.24						
	total ryegrass	73.22	73.35	0.13	3.12	90	91	
New England Seed Co.	<i>Putnam Co-Op Conservation</i>							
	Creeping Red Fescue	29.55	27.30	-2.25	2.99	85	93	
	Fawn Tall Fescue	29.11	23.28	-5.83	3.67	*	85	88
	White Clover	4.95	0.71	-4.24	0.66	*	90	85 + 8H
	VNS Perennial Ryegrass	9.63	21.71	12.08	2.52	*		
	Annual Ryegrass	24.97	7.63	-17.34	3.22	*		
	total ryegrass	34.22	29.34				90	92
Preferred Seed Company Inc.	<i>Forage Extra - Pasture Refresher Mix</i>							
	Duo Festulolium	29.74	26.35	-3.39	3.72	90	92	
	Crown Royale Orchardgrass	19.07	21.67	2.60	2.55	*	90	90
	Jumbo Ladino P/L 34% CO Clover	6.55	6.87	0.32	0.93		43	64 + 31H
	Enhancer Annual Ryegrass	14.94	28.72	13.77	2.55	*		
	Calibra Tetraploid Perennial Ryegrass	24.59	14.16	-10.43	2.76	*		
	total ryegrass	39.53	42.88				90	97
New England Seed Co.	<i>Conservation 200 Mix</i>							
	Kentucky Bluegrass	4.28	7.18	2.90	0.85	*	80	69
	Common Tall Fescue	44.38	42.35	-2.03	3.79		85	94
	Creeping Red Fescue	9.94	10.89	0.95	2.20		85	97
	Annual Ryegrass	29.47	26.02	-3.45	3.67		90	
	Perennial Ryegrass	9.63	12.41	2.78	2.20	*	90	
	total ryegrass	39.10	38.43				x	90
New England Seed Co.	<i>Southern N.E. Pasture Mix</i>							
	Tongstetraploid Perennial Ryegrass	35.48	41.48	6.00	4.86	*	90	97
	Climax Timothy	44.91	29.53	-15.38	3.70	*	80	98
	Orchardgrass	9.65	18.77	9.12	3.10	*	80	79
	Ladino Clover	9.93	9.67	-0.26	1.70		80	92 + 7H

Table 5. Germination and purity of crop seed.

\* = Does not meet label claim.

Seed Company	Seed	Purity Claim (%)	Purity Found (%)	Germ Claim (%)	Germ Found (%)	
V. Town Ag Services	Rye	99.69	97.85	94	61	*
King's Agriseeds Inc.	Malabar Wheat	99.50	100	90	94	
Ontario Specialty Grains	Rye	98.00	98.89	85	90	
King's Agriseed Inc.	Buckwheat	99.10	98.38	85	95	
Southern States Coop Inc.	Rye	99.61	99.94	85	76	*
Cooperative Feed	Rye	98.00	99.12	85	87	
Crop Production Services	Rye	No claim	98.62 <sup>a</sup>	91	78	
Eldred Hay Grain	Rye	98.97	99.60	85	74	*
Preferred Seed Company, Inc.	Sorghum Sudangrass Hybrid	98.00	99.20	85	91	

<sup>a</sup> Nine *Rumex* sp. seeds found in purity sample and 43 in noxious weed sample (within tolerance 0.029%)

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