

Seed Germination and Purity

Analysis 2022

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A total of 340 vegetable, crop, and pasture mixture seed samples were collected by inspectors from the Bureau of Regulation and Inspection of the Connecticut Department of Agriculture for testing in 2022. As the official seed testing laboratory, The Connecticut Agricultural Experiment Station performed germination and purity analyses of the seed samples for compliance with the Connecticut Seed Law Regulations and the Federal Seed Act. Seed tests and analyses were conducted by following the Association of Official Seed Analysts Rules for Testing Seeds.

Among 333 vegetable seed samples, three hundred twenty-seven samples were tested for seed germination rates because the other six samples did not have enough seeds for the test (Table 1). Among the tested vegetable seed samples, two hundred ninety-six samples passed the standard germination test, but the other 31 samples did not meet their label claims and the Federal standard (Table 1). Summarized by seed sources, all samples from four seed companies passed the standard germination test, but one or more samples from the other six companies failed the test (Table 2). Among 52 tested vegetable species, all samples in 37 species passed the standard germination test; the other 15 species had one or more samples that failed the test. Poor germination rates and heavy mold were found on chive, cilantro, and okra samples (Table 3). Seed samples were examined for prohibited noxious weed seeds and no noxious weed contaminants were found in the tested samples.

A total of seven crop and pasture mixture samples were received and tested for purity and germination rates. In the sample Contractors Mixture, two perennial rye ingredients were tested in the combination of the genus and reported as a sum for the purity test and a mean for the germination test. The results showed that only one sample, Fall Rye Seed, passed both standard purity and germination tests, but the other six samples had one or more ingredients that did not meet the labeling claims and purity or germination standards (Figure 4). For the sample Diceris Orchard Grass, neither purity nor the germination rate met the labeling claims. Winter rye in both Moshers and VNS Winter Rye samples passed germination test, but the purity did not meet the labeling claims. The purity of the sample Crimson Clover VNS met the labeling claim, but the germination rate did not meet the labeling claim and standards.

Official seed samples were collected by Kate Nelson at the Connecticut Department of Agriculture. The Seed Law is administered by the Seed Control Official for the Commissioner of the Department of Agriculture.

Table 1. Results of germination rates of vegetable seed samples in comparison to label claims.

| Plant | Cultivar | Seed Company | Germination (%) | |
|-----------|-----------------------|-------------------------------------|-----------------|--------------------|
| | | | Claimed | Found ^a |
| Asparagus | Mary Washington | New England Seed Co. | 70 | 94 |
| Basil | Spicy Globe | The Chas. C. Hart Seed Co. | 70 | 89 |
| Basil | Lemon | The Chas. C. Hart Seed Co. | 70 | 80 |
| Basil | Cinnamon | New England Seed Co. | 70 | 92 |
| Basil | Italian Large Leaf | New England Seed Co. | 70 | 91 |
| Basil | Lettuce Leaved | New England Seed Co. | 70 | 89 |
| Basil | Italian Large Leaf | New England Seed Co. | 70 | 96 |
| Basil | Dwarf Greek | New England Seed Co. | 75 | 93 |
| Basil | A Foglia Violetta | La Semiorto Sementi | 75 | 53* |
| Basil | Purple | Seedway LLC. | 70 | 94 |
| Basil | Italian Genovese | Botanical Interests, INC. | 70 | 95 |
| Basil | Sweet | (Ferry Morse) Green Garden Products | 70 | 83 |
| Basil | Sweet | Burpee Garden Products Co. | 70 | 86 |
| Basil | Italian Large Leaf | (Old Seeds) - Seedway LLC. | 70 | 93 |
| Basil | Cinnamon | (Old Seeds) - Seedway LLC. | 70 | 91 |
| Basil | Sweet | Livingston - Green Garden Products | 70 | 86 |
| Basil | Lemon | Livingston - Green Garden Products | 70 | 93 |
| Basil | Compact | Livingston - Green Garden Products | 70 | 94 |
| Beans | Bountiful | The Chas. C. Hart Seed Co. | 75 | 64*** |
| Beans | Top Notch Wax | The Chas. C. Hart Seed Co. | 75 | 89 |
| Beans | Pencil Pod Wax | The Chas. C. Hart Seed Co. | 75 | 86 |
| Beans | Kentucky Wonder Green | The Chas. C. Hart Seed Co. | 75 | 93 |
| Beans | Cherokee Wax | New England Seed Co. | 70 | 68*** |
| Beans | Fordhook 242 (Lima) | New England Seed Co. | 70 | 14* |
| Beans | Tendergreen | New England Seed Co. | 70 | 92 |
| Beans | Jade (Bush Bean) | New England Seed Co. | 70 | 52* |
| Beans | Fagiolo Nano | La Semiorto Sementi | 70 | 21* |
| Beans | Home Run | Seedway LLC. | 75 | 18* |
| Beans | Blue Lake FM-1K | Botanical Interests, INC. | 75 | 66*** |
| Beans | Stringless | Burpee Garden Products Co. | 75 | 88 |
| Beet | Bulls Blood | The Chas. C. Hart Seed Co. | 65 | 76 |
| Beet | Chiogga | The Chas. C. Hart Seed Co. | 65 | 58*** |
| Beet | Cylindra | New England Seed Co. | 75 | 81 |
| Beet | Detroit Dark Red | New England Seed Co. | 75 | 43* |
| Beet | Chiogga | New England Seed Co. | 75 | 70*** |
| Beet | Golden Detroit | New England Seed Co. | 65 | 86 |
| Beet | Guardsmark | Seedway LLC. | 65 | 75 |
| Beet | Touchstone Gold | Seedway LLC. | 65 | 87 |
| Beet | Detroit Dark Red | (Ferry Morse) Green Garden Products | 65 | 78 |

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|--------------------|--------------------------|-------------------------------------|----|-------|
| Beet | Detroit Supreme | Burpee Garden Products Co. | 65 | 64*** |
| Beet | Early Wonder | Livingston - Green Garden Products | 65 | 88 |
| Beet | Detroit Dark Red | Livingston - Green Garden Products | 65 | 70 |
| Beet | Ruby Queen | Livingston - Green Garden Products | 65 | 80 |
| Beet | Cylindra | Livingston - Green Garden Products | 65 | 89 |
| Broccoli | Waltham 29 | The Chas. C. Hart Seed Co. | 65 | 79 |
| Broccoli | Calabrese Grn. Sprouting | The Chas. C. Hart Seed Co. | 65 | 86 |
| Broccoli | Raab Early Pugliesi | New England Seed Co. | 75 | 94 |
| Broccoli | Waltham 29 | New England Seed Co. | 75 | 93 |
| Broccoli (Organic) | Waltham 29 | New England Seed Co. | 75 | 95 |
| Broccoli | Di Cicco | Botanical Interests, INC. | 75 | 83 |
| Broccoli | Green Sprouting | (Ferry Morse) Green Garden Products | 75 | 74*** |
| Broccoli | Sun King Hybrid | Burpee Garden Products Co. | 75 | 93 |
| Broccoli | De Cicco | Burpee Garden Products Co. | 75 | 77 |
| Broccoli | Green Sprouting | Livingston - Green Garden Products | 75 | 97 |
| Brussel Sprout | L.I. Improved | The Chas. C. Hart Seed Co. | 70 | 98 |
| Brussel Sprout | Long Island Improved | New England Seed Co. | 70 | 58* |
| Brussel Sprout | Catskill | Seedway LLC. | 70 | 80 |
| Brussel Sprout | Long Island | (Old Seeds) - Seedway LLC. | 70 | 78 |
| Cabbage | Early Jersey Wakefield | The Chas. C. Hart Seed Co. | 75 | 94 |
| Cabbage | Savory Perfection | The Chas. C. Hart Seed Co. | 75 | 77 |
| Cabbage | Chieftain | New England Seed Co. | 75 | 76 |
| Cabbage | Danish Ball Head | New England Seed Co. | 75 | 94 |
| Cabbage | Golden Acre | New England Seed Co. | 75 | 90 |
| Cabbage (Non-GMO) | Golden Acre | New England Seed Co. | 75 | 83 |
| Cabbage | Copenhagen Market | Botanical Interests, INC. | 75 | 93 |
| Cabbage | Ferry's Round Dutch | (Ferry Morse) Green Garden Products | 75 | 75 |
| Cabbage | Red Acre | (Old Seeds) - Seedway LLC. | 75 | 78 |
| Cantaloupe | Delicious 51 | New England Seed Co. | 75 | 74*** |
| Cantaloupe | Melon Edisto 47 | New England Seed Co. | 75 | 25* |
| Carrot | Rainbow Mix | The Chas. C. Hart Seed Co. | 55 | 54*** |
| Carrot | Scarlet Nantes | The Chas. C. Hart Seed Co. | 55 | 93 |
| Carrot | Danvers Half Long | New England Seed Co. | 55 | 79 |
| Carrot | Little Fingers | New England Seed Co. | 55 | 84 |
| Carrot | Rainbow | New England Seed Co. | 55 | 84 |
| Carrot | Nantes Long | Seedway LLC. | 55 | 89 |
| Carrot | Atomic Red | Botanical Interests, INC. | 55 | 81 |
| Carrot | Chantenay | (Ferry Morse) Green Garden Products | 55 | 89 |
| Carrot | Short n Sweet | Burpee Garden Products Co. | 55 | 88 |
| Carrot | Nantes | Livingston - Green Garden Products | 55 | 86 |
| Carrot | Little Fingers | Livingston - Green Garden Products | 55 | 74 |
| Carrot | Touchon | Livingston - Green Garden Products | 55 | 78 |
| Cauliflower | Romanesco Precoce | La Semiorto Sementi | 75 | 94 |

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|-----------------|-----------------------------|-------------------------------------|----|-------|
| Cauliflower | Snowball Y | Back to the Roots | 75 | 89 |
| Cauliflower | Snowball Early | Livingston - Green Garden Products | 75 | 80 |
| Celery | Tall Utah | New England Seed Co. | 55 | 89 |
| Celery | Tall Utah 52-70 | New England Seed Co. | 55 | 95 |
| Celery | Utah | Botanical Interests, INC. | 55 | 87 |
| Celery | Tall Utah #5270R | (Ferry Morse) Green Garden Products | 55 | 86 |
| Celery | Tall Utah | Livingston - Green Garden Products | 55 | 85 |
| Chicory | Catalogna | New England Seed Co. | 65 | 67 |
| Chicory | Radicchio Verona Red | New England Seed Co. | 65 | 89 |
| Chicory | Verona Red Radicchio | New England Seed Co. | 65 | 85 |
| Chinese Cabbage | Bok Choy-Toy Choy | Botanical Interests, INC. | 75 | N/A** |
| Chinese Cabbage | Bok Choy (White Stem) | Back to the Roots | 75 | 96 |
| Chinese Cabbage | Pak Choi | Livingston - Green Garden Products | 75 | 96 |
| Chinese Green | Pak Choi | Seedway LLC. | 75 | 90 |
| Chives | N/A | The Chas. C. Hart Seed Co. | 50 | 9* |
| Cilantro | Cilantro | The Chas. C. Hart Seed Co. | 70 | 3* |
| Cilantro | Coriander | New England Seed Co. | 70 | 13* |
| Cilantro | Santo | New England Seed Co. | 70 | 5* |
| Cilantro | Coriander (Herb) | Seedway LLC. | 70 | 3* |
| Collards | Georgia Green | The Chas. C. Hart Seed Co. | 80 | 78*** |
| Collards | Georgia | New England Seed Co. | 80 | 87 |
| Collards | Flash Hyb. | New England Seed Co. | 80 | 88 |
| Collards | Vates | Seedway LLC. | 80 | 96 |
| Collards | Georgia Southern, Creole | (Ferry Morse) Green Garden Products | 80 | 89 |
| Collards | Georgia | Burpee Garden Products Co. | 80 | 74*** |
| Collards | Vates | Burpee Garden Products Co. | 80 | 87 |
| Corn | Golden Bantam 8-Row | The Chas. C. Hart Seed Co. | 75 | 79 |
| Corn | Honey Select | The Chas. C. Hart Seed Co. | 75 | 96 |
| Corn | Early Sunglow | New England Seed Co. | 75 | 93 |
| Corn | Red Strawberry | New England Seed Co. | 75 | 87 |
| Corn | Delectable | New England Seed Co. | 75 | 99 |
| Corn | Kandy Korn Hybrid | New England Seed Co. | 75 | 97 |
| Corn | Triple Crown Bicolor Hybrid | Burpee Garden Products Co. | 75 | 93 |
| Cress | Upland | New England Seed Co. | 60 | 78 |
| Cress | True Watercress | New England Seed Co. | 40 | 82 |
| Cress | Upland | Livingston – Green Garden Products | 60 | 98 |
| Cucumber | Improved Long Green | The Chas. C. Hart Seed Co. | 80 | 53* |
| Cucumber | Market More | The Chas. C. Hart Seed Co. | 80 | 80 |
| Cucumber | Boston Pickling | New England Seed Co. | 80 | 93 |
| Cucumber | Market 76 | New England Seed Co. | 80 | 96 |
| Cucumber | Marketmore 76 | New England Seed Co. | 80 | 29* |
| Cucumber | Homemade Pickles | New England Seed Co. | 80 | 85 |
| Cucumber | Straight Eight | New England Seed Co. | 80 | 96 |

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|----------------|-------------------------|-------------------------------------|----|-------|
| Cucumber | Spacemaster 80 | Seedway LLC. | 80 | 72*** |
| Cucumber | Muncher Burpless | Livingston - Green Garden Products | 80 | 34* |
| Cucumber | Spacemaster Bush | Livingston - Green Garden Products | 80 | 94 |
| Cucumber | Market More 70 | Livingston - Green Garden Products | 80 | 70* |
| Dill | Dill Bouquet | New England Seed Co. | 60 | 89 |
| Dill (Organic) | Dill Bouquet | New England Seed Co. | 60 | 79 |
| Dill | Dukat | Seedway LLC. | 60 | 92 |
| Dill | Tetra | Botanical Interests, INC. | 60 | 89 |
| Dill | Bouquet | (Ferry Morse) Green Garden Products | 60 | 82 |
| Dill | Mammoth | Burpee Garden Products Co. | 60 | 90 |
| Dill | Mammoth | Back to the Roots | 60 | 92 |
| Dill | Bouquet | (Old Seeds) - Seedway LLC. | 60 | 74 |
| Dill | Mammoth | Livingston - Green Garden Products | 60 | 87 |
| Eggplant | Long Purple | The Chas. C. Hart Seed Co. | 60 | 51*** |
| Eggplant | Black Beauty | The Chas. C. Hart Seed Co. | 60 | 70 |
| Eggplant | Long Purple | New England Seed Co. | 60 | 97 |
| Eggplant | Black Beauty | New England Seed Co. | 60 | 91 |
| Eggplant | Large Purple | New England Seed Co. | 60 | 96 |
| Eggplant | Melanzana Romanesca | La Semiorto Sementi | 60 | 91 |
| Eggplant | Midnight Moon Hybrid | Burpee Garden Products Co. | 60 | N/A** |
| Endive | Escarole Broadleaf | The Chas. C. Hart Seed Co. | 70 | 95 |
| Endive | Salad King | New England Seed Co. | 70 | 80 |
| Endive | Full Heart | Seedway LLC. | 70 | 92 |
| Fennel | Bronze | The Chas. C. Hart Seed Co. | 60 | 81 |
| Fennel | Finocchio | The Chas. C. Hart Seed Co. | 60 | 20* |
| Fennel | Florence | New England Seed Co. | 60 | 87 |
| Fennel | Capo Rizzuto | La Semiorto Sementi | 60 | 89 |
| Kale | Red Russian | The Chas. C. Hart Seed Co. | 75 | 11* |
| Kale | Lacinato | The Chas. C. Hart Seed Co. | 75 | 28* |
| Kale | Lacinato | New England Seed Co. | 75 | 77 |
| Kale | Red Russian | New England Seed Co. | 75 | 73*** |
| Kale | Blue Scotch | Seedway LLC. | 75 | 63* |
| Kale | Dwarf Blue Curled | Botanical Interests, INC. | 75 | 70*** |
| Kale | Red Russian | (Ferry Morse) Green Garden Products | 75 | 71*** |
| Kale | Dwarf Blue Curled | (Ferry Morse) Green Garden Products | 75 | N/A** |
| Kale | Premier | Burpee Garden Products Co. | 75 | 58* |
| Kale | Dwarf Blue Curled Vates | (Old Seeds) - Seedway LLC. | 75 | 88 |
| kale | Siberian Improved | Livingston - Green Garden Products | 75 | 88 |
| Kale | Blue Scotch Curled | Livingston - Green Garden Products | 75 | 92 |
| Kohlrabi | White Vienna | The Chas. C. Hart Seed Co. | 75 | 88 |
| Kohlrabi | White Vienna | New England Seed Co. | 75 | 84 |
| Kohlrabi | Early Purple Vienna | Seedway LLC. | 75 | 94 |
| Kohlrabi | Early Winter Vienna | Livingston - Green Garden Products | 75 | 90 |

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|----------------|---------------------------|-------------------------------------|----|-------|
| Komatsuna | Tender Green | Botanical Interests, INC. | 75 | 100 |
| Leek | American Flag | The Chas. C. Hart Seed Co. | 60 | 98 |
| Leek | American Broad Flag | New England Seed Co. | 60 | 97 |
| Leek | American Flag | (Ferry Morse) Green Garden Products | 60 | 88 |
| Leek | American Flag | Livingston - Green Garden Products | 60 | 96 |
| Lettuce | Romaine Red | The Chas. C. Hart Seed Co. | 80 | 84 |
| Lettuce | Bibb | The Chas. C. Hart Seed Co. | 80 | 89 |
| Lettuce | Oakleaf | The Chas. C. Hart Seed Co. | 80 | 91 |
| Lettuce | Black Seeded Simpson | New England Seed Co. | 80 | 97 |
| Lettuce | Paris Island Cos | New England Seed Co. | 80 | 95 |
| Lettuce | Big Boston | New England Seed Co. | 80 | 95 |
| Lettuce | Buttercrunch | New England Seed Co. | 80 | 18* |
| Lettuce | Romaine Cos | New England Seed Co. | 80 | 92 |
| Lettuce | Oakleaf | Seedway LLC. | 80 | 87 |
| Lettuce | Red Sails | Botanical Interests, INC. | 80 | 95 |
| Lettuce | Grand Rapids Tipburn Res. | (Ferry Morse) Green Garden Products | 80 | 74*** |
| Lettuce | Iceberg A | Burpee Garden Products Co. | 80 | 96 |
| Lettuce | Black Seeded Simpson | Burpee Garden Products Co. | 80 | 80 |
| Lettuce | Little Gem | Burpee Garden Products Co. | 80 | 91 |
| Lettuce | Romaine | Back to the Roots | 80 | 90 |
| Lettuce | Bibb Butterhead | Back to the Roots | 80 | 96 |
| Lettuce | Giant Lakes 659 | (Old Seeds) - Seedway LLC. | 80 | 98 |
| Lettuce | Buttercrunch | (Old Seeds) - Seedway LLC. | 80 | 91 |
| Lettuce | Paris Island Romaine | Livingston - Green Garden Products | 80 | 88 |
| Lettuce | Black Seeded Simpson | Livingston - Green Garden Products | 80 | 92 |
| Lettuce | Iceberg | Livingston - Green Garden Products | 80 | 91 |
| Lettuce | Grand Rapids | Livingston - Green Garden Products | 80 | 74*** |
| Lettuce | Red Romaine | Livingston - Green Garden Products | 80 | 98 |
| Mache | Big Seeded | Botanical Interests, INC. | 70 | 78 |
| Marjoram | Sweet | The Chas. C. Hart Seed Co. | 50 | 58 |
| Melon | Hale's Best Jumbo | Livingston - Green Garden Products | 75 | 96 |
| Mustard | Green Wave | New England Seed Co. | 50 | 93 |
| Okra | Long Green | The Chas. C. Hart Seed Co. | 50 | 0* |
| Okra | Clemson Spineless | New England Seed Co. | 50 | 0* |
| Okra (Non-GMO) | Clemson Spineless | New England Seed Co. | 50 | 59 |
| Okra | Clemson Spineless | Burpee Garden Products Co. | 50 | 0* |
| Onion | White Portugal | The Chas. C. Hart Seed Co. | 70 | 73 |
| Onion | White Bunching | New England Seed Co. | 70 | 98 |
| Onion | Sweet Spanish | New England Seed Co. | 70 | 94 |
| Onion | Sweet Spanish | Seedway LLC. | 70 | 85 |
| Onion | Cabernet | Botanical Interests, INC. | 70 | N/A** |
| Onion | Walla Walla | (Ferry Morse) Green Garden Products | 70 | 80 |
| Onion | White Lisbon | Burpee Garden Products Co. | 70 | 98 |

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|------------------|---------------------------|-------------------------------------|----|-------|
| Onion | Flavor King | Burpee Garden Products Co. | 70 | 68 |
| Onion | Summer Garden Standard | (Old Seeds) - Seedway LLC. | 70 | 89 |
| Onion | Evergreen Bunching | Livingston - Green Garden Products | 70 | 84 |
| Pak Choi | Boy Choi | New England Seed Co. | 75 | 91 |
| Parsley | Italian Plain Leaf | New England Seed Co. | 60 | 83 |
| Parsley | Moss Curled | New England Seed Co. | 60 | 72 |
| Parsley | Italian Flat Leaf | (Ferry Morse) Green Garden Products | 60 | 53*** |
| Parsley | Gigante D'Italia | Burpee Garden Products Co. | 60 | 90 |
| Parsley | Italian Large Leaf | Back to the Roots | 60 | 95 |
| Parsley | Extra Triple Curled | (Old Seeds) - Seedway LLC. | 60 | 77 |
| Parsley | Triple/ Curled | Livingston - Green Garden Products | 60 | 87 |
| Parsley | Italian/ Single | Livingston - Green Garden Products | 60 | 82 |
| Parsnip | Hollow Crown | The Chas. C. Hart Seed Co. | 60 | 65 |
| Parsnip | All American | New England Seed Co. | 60 | 83 |
| Parsnip | All American | Seedway LLC. | 60 | 87 |
| Parsnip | All American | Botanical Interests, INC. | 60 | 79 |
| Parsnip | Hollow Crown | Livingston - Green Garden Products | 60 | 78 |
| Peas | Green Arrow | The Chas. C. Hart Seed Co. | 80 | 65* |
| Peas | Dwarf Grey Sugar | The Chas. C. Hart Seed Co. | 80 | 98 |
| Peas | Lincoln | The Chas. C. Hart Seed Co. | 80 | 22* |
| Peas | Oregon Sugar Pod II | The Chas. C. Hart Seed Co. | 80 | 73*** |
| Peas | Sugar Daddy | New England Seed Co. | 80 | 89 |
| Peas | Lincoln | New England Seed Co. | 80 | 91 |
| Peas | Non-GMO Dwarf Grey | New England Seed Co. | 80 | 92 |
| Peas | Laxton's Progress | New England Seed Co. | 80 | 74*** |
| Pepper | Red Cherry Hot | The Chas. C. Hart Seed Co. | 55 | 27* |
| Pepper | Cubanelle | The Chas. C. Hart Seed Co. | 55 | 69 |
| Pepper | California Wonder | The Chas. C. Hart Seed Co. | 55 | 74 |
| Pepper | Cubanelle Sweet Fryer | New England Seed Co. | 55 | 89 |
| Pepper | Early Jalapeno | New England Seed Co. | 55 | 63 |
| Pepper | Red Cherry Hot | New England Seed Co. | 55 | 38* |
| Pepper | Cal. Wonder | New England Seed Co. | 55 | 87 |
| Pepper (Organic) | Cal. Wonder | New England Seed Co. | 55 | 75 |
| Pepper | Fish | New England Seed Co. | 55 | 93 |
| Pepper | Pasilla Bajio | New England Seed Co. | 55 | 93 |
| Pepper | Nocera Rosso | La Semiorto Sementi | 55 | 100 |
| Pepper | Nocera Giallo | La Semiorto Sementi | 55 | 91 |
| Pepper | Sweet Banana | Seedway LLC. | 55 | 81 |
| Pepper | California Wonder 300 TMR | (Ferry Morse) Green Garden Products | 55 | 92 |
| Pepper | California Wonder | Livingston - Green Garden Products | 55 | 88 |
| Pumpkin | Big Max | The Chas. C. Hart Seed Co. | 75 | 66*** |
| Pumpkin | Small Sugar | The Chas. C. Hart Seed Co. | 75 | 94 |
| Pumpkin | Autumn Buckskin | New England Seed Co. | 75 | 91 |

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|-----------------|----------------------------|-------------------------------------|----|-------|
| Pumpkin | Cinderella | New England Seed Co. | 75 | 56* |
| Radish | Red Arrow Daikon | The Chas. C. Hart Seed Co. | 75 | 89 |
| Radish | Cherry Bell | The Chas. C. Hart Seed Co. | 75 | 97 |
| Radish | White Tipped Scarlet | The Chas. C. Hart Seed Co. | 75 | 100 |
| Radish | Champion | New England Seed Co. | 75 | 97 |
| Radish | Watermelon | New England Seed Co. | 75 | 96 |
| Radish | Cherry Belle | New England Seed Co. | 75 | 89 |
| Radish | Chinese White Winter | Seedway LLC. | 75 | 98 |
| Radish | Crimson Giant | Botanical Interests, INC. | 75 | 99 |
| Radish | Crimson Giant | (Ferry Morse) Green Garden Products | 75 | 98 |
| Radish | German Giant | Burpee Garden Products Co. | 75 | 98 |
| Radish | Sparkler White Tip | Livingston - Green Garden Products | 75 | 99 |
| Radish | French Breakfast | Livingston - Green Garden Products | 75 | 99 |
| Radish | Cherry Belle | Livingston - Green Garden Products | 75 | 97 |
| Radish | White Icicle | Livingston - Green Garden Products | 75 | 94 |
| Rutabaga | Improved Purple Top Yellow | New England Seed Co. | 75 | 96 |
| Rutabaga | American Purple Top | Seedway LLC. | 75 | 89 |
| Rutabaga | American Purple Top | Livingston - Green Garden Products | 75 | 98 |
| Sage | N/A | The Chas. C. Hart Seed Co. | 60 | 85 |
| Sage | Broadleaf | New England Seed Co. | 60 | 93 |
| Savory | Savory Summer | Botanical Interests, INC. | 55 | 71 |
| Savory | N/A | Livingston - Green Garden Products | 55 | 66 |
| Spinach | New Zealand | The Chas. C. Hart Seed Co. | 40 | 86 |
| Spinach | 7-Green | New England Seed Co. | 60 | 88 |
| Spinach | Bloomsdale Savoy | New England Seed Co. | 60 | 96 |
| Spinach | Bloomsdale | New England Seed Co. | 60 | 94 |
| Spinach | Winter Bloomsdale | Seedway LLC. | 60 | 92 |
| Spinach | Matador | Botanical Interests, INC. | 60 | 86 |
| Spinach | Correnta Hybrid | (Ferry Morse) Green Garden Products | 60 | 79 |
| Spinach | Bloomsdale Long Standing | Burpee Garden Products Co. | 60 | 91 |
| Spinach | Bloomsdale Long Island | Livingston - Green Garden Products | 60 | 80 |
| Spinach | America | Livingston - Green Garden Products | 60 | 51*** |
| Squash | Early Yellow Straightneck | The Chas. C. Hart Seed Co. | 75 | 99 |
| Squash | Buttercup Burgess | The Chas. C. Hart Seed Co. | 75 | 94 |
| Squash | Waltham Butternut | The Chas. C. Hart Seed Co. | 75 | 94 |
| Squash | Rand Zucchini | The Chas. C. Hart Seed Co. | 75 | 86 |
| Squash (Winter) | Blue Hubbard | New England Seed Co. | 75 | N/A** |
| Squash (Winter) | Hybrid Sake | New England Seed Co. | 75 | 98 |
| Squash (Winter) | Queensland Blue | New England Seed Co. | 75 | N/A** |
| Swiss Chard | Lucullus | The Chas. C. Hart Seed Co. | 65 | 71 |
| Swiss Chard | Rhubarb | The Chas. C. Hart Seed Co. | 65 | 59*** |
| Swiss Chard | Giant Lucullus | New England Seed Co. | 65 | 81 |
| Swiss Chard | Rhubarb | New England Seed Co. | 65 | 77 |

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|------------------|--------------------------|-------------------------------------|----|-------|
| Swiss Chard | Fordhook Giant | New England Seed Co. | 65 | 79 |
| Swiss Chard | Ruby Red | Seedway LLC. | 65 | 90 |
| Swiss Chard | Rhubarb Chard | Burpee Garden Products Co. | 65 | 85 |
| Thyme | N/A | The Chas. C. Hart Seed Co. | 50 | 71 |
| Thyme | Broad Leaf | New England Seed Co. | 50 | 72 |
| Thyme | N/A | Burpee Garden Products Co. | 50 | 75 |
| Thyme | Thymus Vulgaris | (Old Seeds) - Seedway LLC. | 50 | 51 |
| Thyme | N/A | Livingston - Green Garden Products | 50 | 41*** |
| Tomatillo | Verde | New England Seed Co. | 50 | 91 |
| Tomatillo | Grande Rio Verde | Botanical Interests, INC. | 50 | 98 |
| Tomato | Yellow Pear | The Chas. C. Hart Seed Co. | 75 | 100 |
| Tomato | San Marzano Plum | The Chas. C. Hart Seed Co. | 75 | 94 |
| Tomato | Jet Star | The Chas. C. Hart Seed Co. | 75 | 98 |
| Tomato | Red Cherry Large | The Chas. C. Hart Seed Co. | 75 | 99 |
| Tomato | Cherokee Purple | New England Seed Co. | 75 | 94 |
| Tomato | Brandy Wine Yellow | New England Seed Co. | 75 | 95 |
| Tomato | Mr. Stripey | New England Seed Co. | 75 | 93 |
| Tomato | Brandywine Red | New England Seed Co. | 75 | 94 |
| Tomato | Aunt Ruby's German Green | New England Seed Co. | 75 | 96 |
| Tomato | Berkeley Tie Die | New England Seed Co. | 75 | 91 |
| Tomato | Sunny Boy Hybrid | New England Seed Co. | 75 | 95 |
| Tomato | Rio Grande | La Semiorto Sementi | 75 | 95 |
| Tomato | Marmande | La Semiorto Sementi | 75 | 92 |
| Tomato | Beefsteak | (Ferry Morse) Green Garden Products | 75 | 93 |
| Tomato | Cherry, Large Fruited | (Ferry Morse) Green Garden Products | 75 | 86 |
| Tomato | Roma VF | Burpee Garden Products Co. | 75 | 94 |
| Tomato (Organic) | Roma | Burpee Garden Products Co. | 75 | 98 |
| Tomato | Red Cherry Large | Livingston - Green Garden Products | 75 | 94 |
| Tomato | Marglobe | Livingston - Green Garden Products | 75 | 92 |
| Turnip | Seven Top | The Chas. C. Hart Seed Co. | 80 | 83 |
| Turnip | Purple Top White Globe | New England Seed Co. | 80 | 97 |
| Turnip | Purple Top White Globe | Seedway LLC. | 80 | 96 |
| Turnip | Purple-Top White Globe | Burpee Garden Products Co. | 80 | 99 |
| Turnip | Purple Top White Globe | Livingston - Green Garden Products | 80 | 94 |
| Watermelon | Charleston Gray | The Chas. C. Hart Seed Co. | 70 | 69*** |
| Watermelon | Crimson Sweet | New England Seed Co. | 70 | 88 |

^a *: Did not meet the label claim and germination standards

**: Did not have enough seed for the germination test

***: Did not meet the claim, but passed the test within the acceptable tolerance

Table 2. Results of percent vegetable seed samples that met label claims of germination rates by seed source.

| Company | Number of Tested Samples | Meeting Label Claims (%) |
|-------------------------------------|---------------------------------|---------------------------------|
| Back to the Roots | 6 | 100 |
| Botanical Interests, Inc. | 16 | 100 |
| Burpee Green Products Co. | 25 | 96 |
| (Ferry Morse) Green Garden Products | 18 | 100 |
| La Semiorito Sementi | 9 | 78 |
| Livingston - Green Garden Products | 46 | 96 |
| New England Seed Co. | 108 | 91 |
| (Old Seeds) - Seedway LLC | 11 | 100 |
| Seedway LLC | 23 | 87 |
| The Chas. C. Hart Seed Co. | 65 | 85 |

Table 3. Results of average seed germination rates by tested vegetable crops and percentages of samples that met the claims.

| Plant | Number of Tested Samples | Germination (%) | | Samples Meeting the Label Claim (%) |
|-----------------|--------------------------|-----------------|---------------|-------------------------------------|
| | | Label Claim | Average Found | |
| Asparagus | 1 | 70 | 94 | 100 |
| Basil | 17 | 70 | 88 | 94 |
| Beans | 12 | 70-75 | 63 | 67 |
| Beet | 14 | 65 | 75 | 93 |
| Broccoli | 10 | 75 | 87 | 100 |
| Brussel Sprout | 4 | 70 | 78 | 75 |
| Cabbage | 9 | 75 | 84 | 100 |
| Cantaloupe | 2 | 75 | 49 | 50 |
| Carrot | 12 | 55 | 81 | 100 |
| Cauliflower | 3 | 75 | 87 | 100 |
| Chicory | 8 | 65 | 85 | 100 |
| Chinese Cabbage | 2 | 75 | 96 | 100 |
| Chinese Green | 1 | 75 | 90 | 100 |
| Chives | 1 | 50 | 9 | 0 |
| Cilantro | 4 | 70 | 6 | 0 |
| Collards | 7 | 80 | 85 | 100 |
| Corn | 7 | 75 | 92 | 100 |
| Cress | 3 | 60 | 86 | 100 |
| Cucumber | 11 | 80 | 73 | 64 |
| Dill | 9 | 60 | 86 | 100 |
| Eggplant | 6 | 60 | 83 | 100 |
| Endive | 3 | 70 | 89 | 100 |
| Fennel | 4 | 60 | 69 | 75 |
| Kale | 11 | 75 | 65 | 64 |
| Kohlrabi | 4 | 75 | 89 | 100 |
| Komatsuna | 1 | 75 | 75 | 100 |
| Leek | 4 | 60 | 94 | 100 |
| Lettuce | 23 | 80 | 87 | 95 |
| Mache | 1 | 70 | 78 | 100 |
| Marjoram | 1 | 50 | 58 | 100 |
| Melon | 1 | 75 | 96 | 100 |
| Mustard | 1 | 50 | 93 | 100 |
| Okra | 4 | 50 | 15 | 25 |
| Onion | 9 | 70 | 85 | 100 |
| Pak Choi | 1 | 75 | 91 | 100 |
| Parsley | 8 | 60 | 80 | 100 |

| | | | | |
|-----------------|----|----|----|-----|
| Parsnip | 5 | 60 | 79 | 100 |
| Peas | 8 | 80 | 76 | 75 |
| Pepper | 15 | 55 | 77 | 87 |
| Pumpkin | 4 | 75 | 77 | 75 |
| Radish | 14 | 75 | 96 | 100 |
| Rutabaga | 3 | 75 | 94 | 100 |
| Sage | 2 | 60 | 89 | 100 |
| Savory | 2 | 55 | 68 | 100 |
| Spinach | 10 | 60 | 84 | 100 |
| Squash (Winter) | 5 | 75 | 94 | 100 |
| Swiss Chard | 7 | 65 | 77 | 100 |
| Thyme | 5 | 50 | 62 | 100 |
| Tomatillo | 2 | 50 | 94 | 100 |
| Tomato | 19 | 75 | 94 | 100 |
| Turnip | 5 | 80 | 94 | 100 |
| Watermelon | 2 | 70 | 79 | 100 |

Table 4. Results of purity and germination rates of crop and pasture mixture samples in comparison to the label claims.

| Seed Company | Seed Mixture | Purity (%) | | Germination (%) | |
|------------------------------|---------------------------------|------------|--------------------|-----------------|--------------------|
| | | Claim | Found ^z | Claim | Found ^z |
| Nutrien Ag Solutions | Moshers | | | | |
| | Winter Rye | 100 | 99.47* | 86 | 85** |
| | VNS Winter Rye | | | | |
| | Winter Rye | 98.47 | 96.50* | 67 | 88 |
| | Crimson Clover VNS | | | | |
| | Crimson Clover VNS | 99.07 | 99.65 | 85 | 73* |
| | Contractors Mixture | | | | |
| | Gulf Annual Rye | 69.75 | 64.24** | 90 | 89** |
| | Evening Shade Rye (Perennial) | 16.44 | | 90 | |
| | VNS 50% CoPerennial Ryegrass | 3.66 | | 85 | |
| | Total Perennial ryegrass | 20.10 | 26.76 | | 94 |
| | Boreal Creeping Red Fescue CO | 3.29 | 8.20 | 90 | 78* |
| | Permanent Pasture Mix | | | | |
| | Greendale Forage Tall Fescue | 19.89 | 18.64** | 90 | 96 |
| | Sweet Tart Festulolium | 19.81 | 23.71 | 90 | 87** |
| | Sunrise II Brand Timothy | 14.93 | 14.21** | 90 | 95 |
| | Echelon - F/T, CO Orchard grass | 12.92 | 13.25 | 90 | 80* |
| | VNS Alfalfa | 6.58 | 5.18** | 85 | 86 |
| | Gallant Red R/I CO Clover | 6.56 | 4.46* | 85 | 97 |
| | Jumbo Ladino 34 % CO Clover | 3.62 | 2.06* | 85 | 79** |
| Diceros Orchard Grass | | | | | |
| Diceros Orchard Grass | 96.3 | 89.7* | 92 | 66* | |
| Fall Rye Seed VNS | | | | | |
| Fall Rye Seed | 99 | 99.52 | 80 | 79** | |

^z *: did not meet the label claim and purity or germination standards.

** : did not meet the claim but passed the standard test within the acceptable tolerance.

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