

Connecticut Agricultural Experiment Station
New Haven, Connecticut

The Quality of Vegetable Seed
Bought by
Market Gardeners in Connecticut
in 1927

E. M. STODDARD AND A. D. McDONNELL

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THE QUALITY OF VEGETABLE SEED BOUGHT BY MARKET GARDENERS IN CONNECTICUT

IN 1927

By E. M. STODDARD and A. D. McDONNELL

For many years this Station has examined seed for germination and purity. The samples were usually sent in voluntarily by growers and dealers, but this method of obtaining material did not supply sufficient number or distribution of samples to furnish good information on the quality of seed sold in the state. More recently the Sampling Agent has collected vegetable seed from various sources in sufficient quantity to warrant publication of the results as an index to the quality of such seed as sold in Connecticut. In Bulletin 283 (1927) the data on two years' collections of packet seed were given, and at this time we present the data on vegetable seed sold in bulk to market gardeners throughout the State. These samples were obtained from market gardeners and represented seed stocks they had purchased for planting in 1927. The collection was started late and not as many samples could be obtained as we had hoped, but a fairly well distributed lot of 172 samples was collected, which are listed in Table I. This seed is not as good as one might suppose it would be, but compares favorably with similar seed sold in other states, and is for the most part an improvement on the packet seed previously reported in Bulletin 283.

The tests made were for germination only, there being no consideration given to other features relative to the value of the sample.

The standard methods of procedure were followed in making the tests. In brief, 200 seeds were selected from each sample and put in a standard germinating chamber in duplicate lots of 100 seeds each, the smaller seeds being put between blotting paper and the larger seeds, such as corn, peas and beans between paper towels. We find by comparative tests that the paper towels give as good results as cloths and do away with the inconvenience of washing and sterilizing the cloths. The substratum was moistened as necessary with tap water. Each sample was kept in the germinating chamber for the standard number of days required for such seeds, and if the germination of the duplicate samples varied more than 10% a retest was made and the resulting percentages used.

TABLE I. GERMINATION TESTS OF BULK VEGETABLE SEED, 1927.

Test Number	Variety of Seed	Per cent of Germination	Grower
Beans			
3311	Black Valentine.....	*84	E. B. Clark Seed Co., Milford, Ct.
3317	Black Valentine.....	*89	Comstock Ferre Co., Wethersfield, Ct.
3315	Bountiful.....	98	Frank S. Platt Co., New Haven, Ct.
3316	Cracker Jack.....	98	Frank S. Platt Co., New Haven, Ct.
3313	Davis White Kidney Wax..	97.5	S. D. Woodruff & Sons, Orange, Ct.
3310	Dwarf Wonder of France...	95.5	J. Breck Seed Co., Boston, Mass.
3302	Fordhook Bush Lima.....	*83	S. D. Woodruff & Sons, Orange, Ct.
3305	Golden Cluster Wax.....	96	Jos. Harris Seed Co., Coldwater, N. Y.
3304	Green Pod Long.....	97	E. B. Clark Seed Co., Milford, Ct.
3309	Hodson's Wax.....	99	Frank S. Platt Co., New Haven, Ct.
3303	Round Pod Kidney.....	96.5	S. D. Woodruff & Sons, Orange, Ct.
3308	Stringless Refugee.....	*82.5	Jos. Harris Seed Co., Coldwater, N. Y.
3314	Stringless Refugee.....	98	F. H. Woodruff & Sons, Milford Ct.
3306	White Kid Wax.....	94	Jos. Harris Seed Co., Coldwater, N. Y.
3307	Yellow Bountiful.....	98	Frances Stokes & Co., Philadelphia, Pa.
3312	Round Pod Kidney Wax...	93	S. D. Woodruff & Sons, Orange, Ct.
Beets			
3281	Coal Black.....	89.5	Francis Brill & Co., Hempsted, N. Y.
3278	Crosby's Egyptian.....	86	Jos. Harris Seed Co., Coldwater, N. Y.
3276	Detroit Dark Red.....	94	E. B. Clark Seed Co., Milford, Ct.
3282	Detroit Dark Red.....	88.5	F. H. Woodruff & Sons, Milford, Ct.
3468	Detroit Dark Red.....	82	F. H. Woodruff & Sons, Milford, Ct.
3286	Detroit Dark Red.....	*77.5	Frank S. Platt Co., New Haven, Ct.
3277	Early Wonder.....	88.5	J. W. Simon & Son, Philadelphia, Pa.
3283	Early Wonder.....	90	E. B. Clark Seed Co., Milford, Ct.
3284	Early Wonder.....	*74.5	S. D. Woodruff & Sons, Orange, Ct.
3279	Egyptian.....	*43.5	David L. Clark & Son, Milford, Ct.
3280	Mangel, Mammoth Long Red	*37.5	Frances Stokes & Co., Philadelphia, Pa.
3275	Woodruff's Early Wonder..	*73	F. H. Woodruff & Sons, Milford, Ct.
Cabbage			
3268	Copenhagen Market.....	*73	Jos. Harris Seed Co., Coldwater, N. Y.
3270	Copenhagen Market.....	85	Alex. Forbes & Co., Newark, N. J.
3269	Danish Round Head.....	*68	C. P. Strandholm, Copenhagen, Denmark
3267	Early Jersey Wakefield....	95	Frances Stokes & Co., Philadelphia, Pa.
3272	Early Jersey Wakefield....	88.5	Jos. Harris Seed Co., Coldwater, N. Y.
3266	Golden Acre.....	*84	Frank S. Platt Co., New Haven, Ct.
3274	Golden Acre.....	*71	Comstock Ferre Co., Wethersfield, Ct.
3271	Penn. State Bullhead.....	89	Frances Stokes & Co., Philadelphia, Pa.
3273	Perfection Savoy.....	86.5	Cadwell & Jones, Hartford, Ct.
Carrot			
3291	Bagley.....	89.5	F. H. Woodruff & Sons, Milford, Ct.
3297	Bagley.....	*56.5	E. B. Clark Seed Co., Milford, Ct.
3292	Chantenay.....	72	Frank S. Platt Co., New Haven, Ct.

*Below standard.

TABLE I. GERMINATION TESTS OF BULK VEGETABLE SEED, 1927.—Continued.

Test Number	Variety of Seed	Per cent of Germination	Grower
Carrot (Continued)			
3299	Chantenay.....	*35.5	E. B. Clark Seed Co., Milford, Ct.
3300	Chantenay.....	67	E. B. Clark Seed Co., Milford, Ct.
3301	Chantenay.....	60	Jos. Harris Seed Co., Coldwater, N. Y.
3295	Danvers.....	61.5	Frances Stokes Co., Philadelphia, Pa.
3288	Danver's Half Long.....	63.5	J. W. Simon & Son, Philadelphia, Pa.
3290	Danver's Half Long.....	*56.5	Cadwell & Jones, Hartford, Ct.
3292	Danver's Half Long.....	67	C. J. Hart Seed Co., Wethersfield, Ct.
3298	Danver's Half Long.....	65.5	F. W. Eberle Seed Co., Albany, N. Y.
3294	Hutchingson.....	89	Jos. Harris Seed Co., Coldwater, N. Y.
3287	Oxheart.....	*42	Comstock Ferre Co., Wethersfield, Ct.
3296	Pride of Denmark.....	*59	Jos. Harris Seed Co., Coldwater, N. Y.
3289	Rubicon.....	60.5	F. W. Eberle Seed Co., Albany, N. Y.
Celery			
3408	Early Blanching.....	87.5	E. B. Clark Seed Co., Milford, Ct.
3407	French Success.....	80	J. W. Simon & Son, Philadelphia, Pa.
3404	Golden Plume or Wonderful	*70	Jos. Harris Seed Co., Coldwater, N. Y.
3406	Golden Self Blanching.....	*29	Jos. Harris Seed Co., Coldwater, N. Y.
3405	Newark Market.....	*75.5	Alex. Forbes & Co., Newark, N. J.
3402	Wonderful.....	*58	F. H. Woodruff & Sons, Milford, Ct.
3403	Woodruff's Wonderful.....	*64	F. H. Woodruff & Sons, Milford, Ct.
Corn (Sweet)			
3359	Alfa Sweet.....	90	Jos. Harris Seed Co., Coldwater, N. Y.
3368	Columbia.....	95.5	S. D. Woodruff & Sons, Orange, Ct.
3354	Columbia Sweet.....	91	Comstock Ferre Co., Wethersfield, Ct.
3369	Columbia White.....	94.5	S. D. Woodruff & Sons, Orange, Ct.
3466	Country Gentleman.....	*80	Comstock Ferre Co., Wethersfield, Ct.
3358	Cromer's Special Sweet.....	*88.5	David L. Clark & Son, Milford, Ct.
3365	Early Bantam Sweet.....	*88.5	Frank S. Platt & Co., New Haven, Ct.
3353	Extra Early Dighton Sweet.	97	S. D. Woodruff & Sons, Orange, Ct.
3364	Giant Bantam Sweet.....	93	Cadwell & Jones, Hartford, Ct.
3362	Golden Bantam.....	92.5	Comstock Ferre & Co., Wethersfield, Ct.
3363	Golden Bantam Sweet.....	95.5	Cadwell & Jones, Hartford, Ct.
3370	Golden Early Market.....	96	Gill Bros. Seed Co., Portland, Ore.
3360	Howling Mob.....	92	Frank S. Platt Co., New Haven, Ct.
3361	Howling Mob Sweet.....	94	Cadwell & Jones, Hartford, Ct.
3371	Long Island Beauty.....	*62.5	David L. Clark & Son, Milford, Ct.
3357	Malcom Sweet.....	95	David L. Clark & Son, Milford, Ct.
3465	Stowell's Evergreen.....	*62	Comstock Ferre & Co., Wethersfield, Ct.
3356	Whipple's.....	98.5	Frank S. Platt Co., New Haven, Ct.
3355	Whipple's Sweet.....	99.5	David L. Clark & Son, Milford, Ct.
Cucumber			
3320	Early Fortune.....	98	F. C. Stokes Seed Co., Philadelphia, Pa.
3321	Davis Perfect.....	*60.5	Jos. Harris Seed Co., Coldwater, N. Y.

*Below standard.

TABLE I. GERMINATION TESTS OF BULK VEGETABLE SEED, 1927.—Continued.

Test Number	Variety of Seed	Per cent of Germination	Grower
Cucumber (Continued)			
3322	Davis Perfect.....	*55	Comstock Ferre Co., Wethersfield, Ct.
3323	Davis Perfect.....	*83	Jos. Harris Seed Co., Coldwater, N. Y.
3319	White Spine.....	85.5	W. F. Cobb & Co., Franklin, Mass.
Egg Plant			
3324	Black Beauty.....	88.5	Jos. Harris Seed Co., Coldwater, N.Y.
Lettuce			
3446	Big Boston.....	99.5	Frank S. Platt Co., New Haven, Ct.
3445	Black Seeded Tennis Ball...	*39.5	Frank S. Platt Co., New Haven, Ct.
3435	Black Seeded Tennis Ball...	*88.5	F. H. Woodruff & Sons, Milford, Ct.
3448	Early May King.....	98	F. H. Woodruff & Sons, Milford, Ct.
3442	Eberle Supreme.....	93.5	F. W. Eberle Seed Co., Albany, N. Y.
3450	Market Gardeners' Private Stock.....	*82.5	J. W. Simon & Son, Philadelphia, Pa.
3434	May King.....	*89.5	F. W. Eberle Seed Co., Albany, N. Y.
3467	May King.....	*82	Jos. Harris Seed Co., Coldwater, N. Y.
3441	May King.....	*81	F. W. Eberle Seed Co., Albany, N. Y.
3428	New York.....	92.5	Olds & Whipple, Hartford, Ct.
3429	New York.....	96	Comstock Ferre & Co., Wethersfield, Ct.
3430	New York.....	93.5	F. W. Eberle Seed Co., Albany, N. Y.
3431	New York.....	96.5	Comstock Ferre & Co., Wethersfield, Ct.
3432	N. Y. or Iceberg.....	93.5	F. W. Eberle Seed Co., Albany, N. Y.
3439	Salamander.....	98	F. W. Eberle Seed Co., Albany, N. Y.
3443	Salamander.....	97	Alex. Forbes Seed Co., Newark, N. J.
3444	Salamander.....	98	Comstock Ferre & Co., Wethersfield, Ct.
3449	Simon's Cabbage Head.....	97	J. W. Simon & Son, Philadelphia, Pa.
3438	Special Stock.....	92	F. H. Woodruff & Sons, Milford, Ct.
3433	Supreme.....	90	F. W. Eberle Seed Co., Albany, N. Y.
3440	Unrivalled.....	98.5	F. W. Eberle Seed Co., Albany, N. Y.
3447	Unrivalled.....	98	Comstock Ferre & Co., Wethersfield, Ct.
3436	Wonderful.....	90	Jos. Harris Seed Co., Coldwater, N. Y.
Muskmelon			
3419	Abbot's Pearl Pink Meat...	*57.5	Ebbert Seed Co., Rocky Ford, Colo.
3417	Bender's Surprise.....	97.5	Cadwell & Jones, Hartford, Ct.
3424	Bender's Surprise.....	94	Frances C. Stokes & Co., Philadelphia, Pa.
3427	Bussee Gem.....	*69	W. Atlee Burpee Co., Philadelphia, Pa.
3459	Cal. Cream.....	*70	Henry Field Seed Co., Shenandoah, Ia.
3425	Hearts of Gold.....	*80.5	Frances C. Stokes & Co., Philadelphia, Pa.
3420	Knight.....	97	Frances C. Stokes & Co., Philadelphia, Pa.
3426	Lake Champion.....	*83.5	J. W. Simon & Son, Philadelphia, Pa.
3458	Osage.....	*48.5	S. D. Woodruff & Sons, Orange, Ct.
3418	Ticonderoga.....	*70	Unknown
3423	Yorko.....	94.5	J. Breck Seed Co., Boston, Mass.

*Below standard.

TABLE I. GERMINATION TESTS OF BULK VEGETABLE SEED, 1927.—Continued.

Test Number	Variety of Seed	Per cent of Germination	Grower
Onion			
3416	Danvers.....	92	Frances Stokes Seed Co., Philadelphia, Pa.
Parsnip			
3391	Harris Model.....	*55	Jos. Harris Seed Co., Coldwater, N. Y.
3464	Harris Model.....	67	Jos. Harris Seed Co., Coldwater, N. Y.
3394	Hollow Crown.....	*47	Frank S. Platt Co., New Haven, Ct.
3393	Woodruff's Rival.....	65	S. D. Woodruff & Sons, Orange, Ct.
Pea			
3456	World's Record.....	*80.5	Frank S. Platt Co., New Haven, Ct.
Pepper			
3395	Bull Nose.....	*64.5	Frank S. Platt Co., New Haven, Ct.
3396	Golden Dawn.....	83	Jos. Harris Seed Co., Coldwater, N. Y.
3397	Simon's World Beater.....	71.5	J. W. Simon & Son, Philadelphia, Pa.
3398	Simon's Jersey Giant.....	78	J. W. Simon & Son, Philadelphia, Pa.
3399	World Beater.....	90	F. H. Woodruff & Sons, Milford, Ct.
Radish			
3413	Early Scarlet.....	93.5	E. B. Clark Seed Co., Milford, Ct.
3412	Early Scarlet Globe.....	93.5	Frank S. Platt Co., New Haven, Ct.
3414	Giant Crimson.....	85.5	Frances Stokes Co., Philadelphia, Pa.
3460	Scarlet Globe.....	*56	S. D. Woodruff & Sons, Orange, Ct.
3411	Scarlet Globe.....	*74	F. H. Woodruff & Sons, Milford, Ct.
Salsify			
3457	Mammoth Sandwich Island.	48.5	Cadwell & Jones, Hartford, Ct.
Spinach			
3342	Bloomsdale Savoy.....	*50.5	E. B. Clark Seed Co., Milford, Ct.
3333	Giant Thick Leaf.....	86.5	E. B. Clark Seed Co., Milford, Ct.
3338	Hot Weather.....	*51	F. H. Woodruff & Sons, Milford, Ct.
3403	Juliana.....	*37	J. W. Simon & Co., Philadelphia, Pa.
3335	King of Denmark.....	69	Comstock Ferre Co., Wethersfield, Ct.
3462	King of Denmark.....	*46.5	E. B. Clark Seed Co., Milford, Ct.
3334	Large Viroflay.....	*37	Comstock Ferre Co., Wethersfield, Ct.
3330	Long Season.....	*49	F. W. Eberle Seed Co., Albany, N. Y.
3337	Long Standing.....	*55.5	W. F. Cobb & Co., Franklin, Mass.
3401	Princess Juliana.....	*60	Peter Henderson & Co., New York, N. Y.
3336	Princess Juliana.....	*57	Comstock Ferre Co., Wethersfield, Ct.
3340	Round Thick Leaf.....	*64.5	F. H. Woodruff & Sons, Milford, Ct.
3343	Viroflay.....	*58.5	S. D. Woodruff & Sons, Orange, Ct.
3339	Woodruff's Hot Weather...	*56.5	F. H. Woodruff & Sons, Milford, Ct.
Squash			
3400	Black Michigan.....	*88	Unknown
3401	Giant Summer Crookneck..	*89.5	F. H. Woodruff & Sons, Milford, Ct.

*Below standard.

TABLE I. GERMINATION TESTS OF BULK VEGETABLE SEED, 1927.—*Concluded.*

Test Number	Variety of Seed	Per cent of Germination	Grower
Tomato			
3375	Bonny Best.....	91.5	Vaughan's Seed Store, New York, N. Y.
3383	Canadian.....	92.5	Jos. Harris Seed Co., Coldwater, N. Y.
3378	Earliana.....	*81	Comstock Ferre Co., Wethersfield, Ct.
3379	Earliana.....	94.5	Jos. Harris Seed Co., Coldwater, N. Y.
3380	Earliana.....	96.5	Jos. Harris Seed Co., Coldwater, N. Y.
3381	Earliana.....	92.5	Vaughan's Seed Store, New York, N. Y.
3384	Earliana.....	94.5	Jos. Harris Seed Co., Coldwater, N. Y.
3382	Early Prolific.....	94.5	F. W. Eberle Seed Co., Albany, N. Y.
3387	Greater Baltimore.....	86.5	Comstock Ferre Co., Wethersfield, Ct.
3388	Greater Baltimore.....	93.5	F. H. Woodruff & Sons, Milford, Ct.
3376	John Baer.....	91.5	Vaughan's Seed Store, New York, N. Y.
3377	John Baer.....	89	Jos. Harris Seed Co., Coldwater, N. Y.
3389	Marglobe.....	96	Frances C. Stokes & Co., Philadelphia, Pa.
3386	Marvana.....	*62.5	Jos. Harris Seed Co., Coldwater, N. Y.
3373	Matchless.....	*80.5	Thos. Griswold & Co., So. Wethersfield, Ct.
3374	Matchless.....	87	Vaughan's Seed Store, New York, N. Y.
3385	New Dwarf Stone.....	96.5	Jos. Harris Seed Co., Coldwater, N. Y.
3390	Stone.....	87	Cadwell & Jones, Hartford, Ct.
Turnip			
3344	Early White Milan.....	*78	Comstock Ferre Co., Wethersfield, Ct.
3345	Yellow Globe.....	*65	Comstock Ferre Co., Wethersfield, Ct.
Watermelon			
3409	Kleckly Sweet.....	*39	Frances C. Stokes & Co., Philadelphia, Pa.

*Below standard.

GERMINATION STANDARDS FOR VEGETABLE SEED.

In the absence of official standards of germination for vegetable seeds we have adopted a table of standards (Table II). These standards were obtained by plotting a frequency curve of all the germination tests made of the several seeds in our laboratory and the published data of four other seed laboratories for the last twenty-three years (1905-1927 inclusive) and taking the classes included in the peak of the curve as a standard. No standard was adopted without data from at least 50 samples.

After collecting much additional data we found it necessary to change slightly a few of the standards adopted in Bulletin 283 published by this Station in January, 1927.

In view of the fact that the data used covered a long period of time and was taken from various parts of the country, we feel that the standards adopted are a fair measure of germination for good seed of the various kinds. The following graph of onion seed illustrates the method used:

GRAPH OF GERMINATION TESTS OF 2245 SAMPLES OF ONION SEED

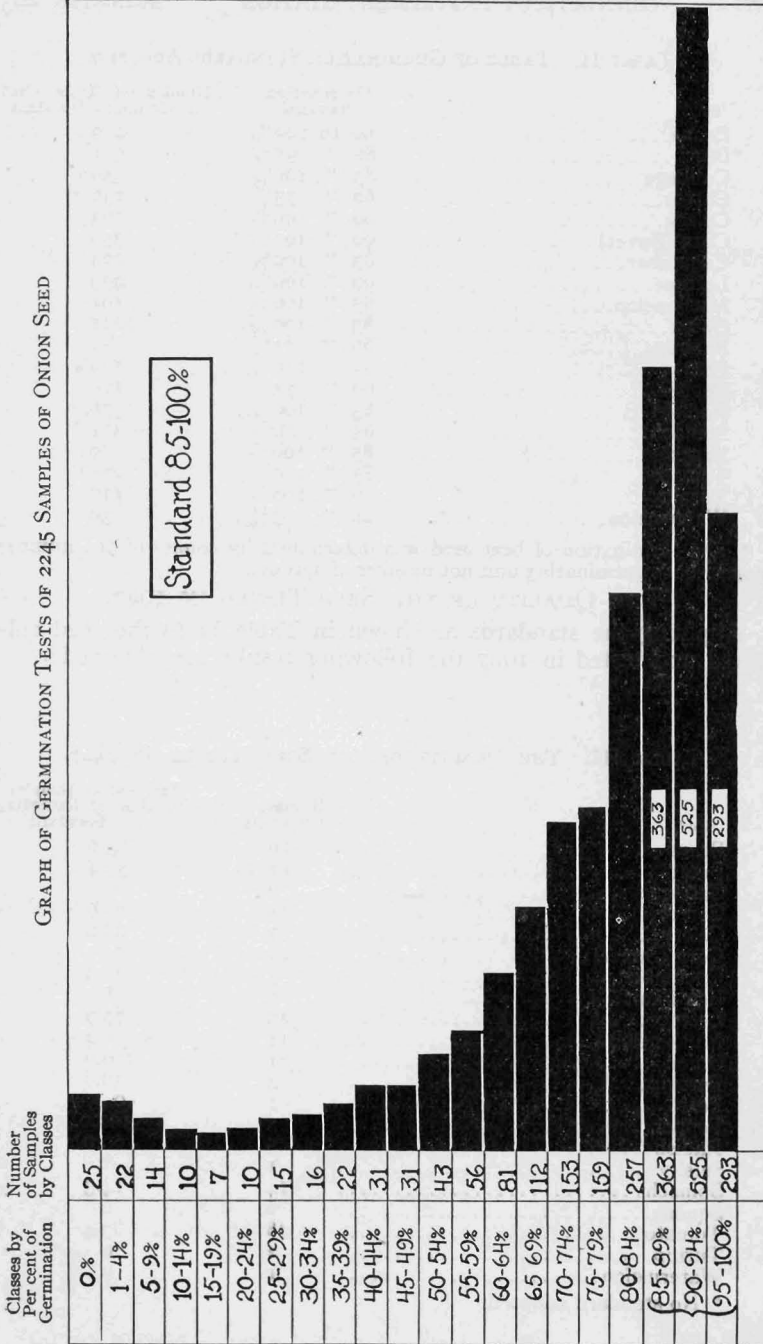


TABLE II. TABLE OF GERMINATION STANDARDS ADOPTED.

Seed	Germination Standard	Number of Tests Used to Compute Standard
Beans.....	90 to 100%	439
*Beet.....	80 " 95%	331
Cabbage.....	85 " 100%	350
Carrot.....	60 " 75%	236
Celery.....	80 " 90%	163
Corn (Sweet).....	90 " 100%	559
Cucumber.....	85 " 100%	224
Lettuce.....	90 " 100%	439
Muskmelon.....	85 " 100%	194
Onion.....	85 " 100%	2245
Parsnip.....	60 " 75%	154
Peas.....	90 " 100%	519
Pepper.....	60 " 75%	116
Radish.....	85 " 100%	478
Spinach.....	65 " 80%	311
Squash.....	85 " 100%	89
Tomato.....	85 " 100%	288
Turnip.....	90 " 100%	177
Watermelon.....	80 " 95%	59

* The germination of beet seed was determined by counts of the number of seed balls germinating and not number of sprouts.

THE QUALITY OF THE SEED TESTED IN 1927.

Applying the standards as shown in Table II to the seed collected and tested in 1927 the following results are obtained:

TABLE III. THE QUALITY OF THE SEED TESTED IN 1927.

Seed	Number of Samples	Per cent of Samples Equaling or Exceeding the Standard
Beans.....	16	75.0
Beet.....	12	59.4
Cabbage.....	9	65.6
Carrot.....	15	66.6
Celery.....	7	28.6
Corn (Sweet).....	19	73.7
Cucumber.....	5	40.0
Egg Plant.....	1	*
Lettuce.....	23	73.9
Muskmelon.....	11	36.4
Onion.....	1	100.0
Parsnip.....	4	50.0
Peas.....	1	0
Pepper.....	5	100.0
Radish.....	5	60.0
Salsify.....	1	*
Spinach.....	14	14.3
Squash.....	2	0
Tomato.....	18	83.4
Turnip.....	2	0
Watermelon.....	1	0

* No standard adopted.