

Connecticut Agricultural Experiment Station
New Haven, Connecticut

**The Quality of Vegetable Seed Sold
in Packets in Connecticut**

In coöperation with
The Commissioner of Agriculture

The Bulletins of this Station are mailed free to citizens of Connecticut who apply for them, and to others as far as the editions permit.

CONNECTICUT AGRICULTURAL EXPERIMENT STATION

OFFICERS AND STAFF

BOARD OF CONTROL

His Excellency, Governor John H. Trumbull, *ex-officio*, *President*.

Charles R. Treat, <i>Vice President</i>	Orange
George A. Hopson, <i>Secretary</i>	Mount Carmel
Wm. L. Slate, Jr., <i>Treasurer</i>	New Haven
Joseph W. Alsop	Avon
Elijah Rogers	Southington
Edward C. Schneider	Middletown
Francis F. Lincoln	Cheshire

STAFF.

E. H. JENKINS, PH.D., *Director Emeritus*.

ADMINISTRATION.	WM. L. SLATE, JR., B.Sc., <i>Director and Treasurer</i> . MISS L. M. BRAUTLECHT, <i>Bookkeeper and Librarian</i> . MISS J. V. BERGER, <i>Stenographer and Bookkeeper</i> . MISS MARY E. BRADLEY, <i>Secretary</i> . G. E. GRAHAM, <i>In charge of Buildings and Grounds</i> .
CHEMISTRY: ANALYTICAL LABORATORY.	E. M. BAILEY, PH.D., <i>Chemist in Charge</i> . C. E. SHEPARD OWEN L. NOLAN HARRY J. FISHER, A.B. } <i>Assistant Chemists</i> . W. T. MATHIS FRANK C. SHELDON, <i>Laboratory Assistant</i> . V. L. CHURCHILL, <i>Sampling Agent</i> . MISS MABEL BACON, <i>Stenographer</i> .
BIOCHEMICAL LABORATORY.	T. B. OSBORNE, PH.D., <i>Chemist in Charge</i> . H. B. VICKERY, PH.D., <i>Biochemist</i> . MISS HELEN C. CANNON, B.S., <i>Dietitian</i> .
BOTANY.	G. P. CLINTON, Sc.D., <i>Botanist in Charge</i> . E. M. STODDARD, B.S., <i>Pomologist</i> . MISS FLORENCE A. McCORMICK, PH.D., <i>Pathologist</i> . WILLIS R. HUNT, PH.D., <i>Assistant in Botany</i> . A. D. McDONNELL, <i>General Assistant</i> . MRS. W. W. KELSEY, <i>Secretary</i> .
ENTOMOLOGY.	W. E. BRITTON, PH.D., <i>Entomologist in Charge</i> ; <i>also State Entomologist</i> . B. H. WALDEN, B.AGR. M. P. ZAPPE, B.S. } <i>Assistant Entomologists</i> . PHILIP GARMAN, PH.D. ROGER B. FRIEND, B.Sc., <i>Graduate Assistant</i> . JOHN T. ASHWORTH, <i>Deputy in Charge of Gipsy Moth Work</i> . R. C. BOTSFORD, <i>Deputy in Charge of Mosquito Elimination</i> . MISS GRACE A. FOOTE, B.A., <i>Secretary</i> .
FORESTRY.	WALTER O. FILLEY, <i>Forester in Charge</i> . H. W. HICOCK, M.F., <i>Assistant Forester</i> . J. E. RILEY, JR., M.F., <i>In Charge of Blister Rust Control</i> . MISS PAULINE A. MERCHANT, <i>Stenographer</i> .
PLANT BREEDING	DONALD F. JONES, S.D., <i>Geneticist in Charge</i> . H. R. MURRAY, B.S., <i>Graduate Assistant</i> .
SOIL RESEARCH.	M. F. MORGAN, M.S., <i>Investigator</i> . H. G. M. JACOBSON, M.S., <i>Assistant</i> .
TOBACCO SUB-STATION AT WINDSOR.	PAUL J. ANDERSON, PH.D., <i>Pathologist in Charge</i> . N. T. NELSON, PH.D., <i>Plant Physiologist</i> .

The Quality of Vegetable Seed Sold in Packets in Connecticut

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

Connecticut has no "pure seed law," but for many years the Experiment Station has made a practice of examining seed for germination and purity. The Report for 1877 contains a table giving the results on 33 samples of vegetable, grass and clover seed and from time to time the Reports of the Station have included the data on tests of seeds for a given year or a series of years. In fact, the Station was a pioneer in this field, having made in the early years a special study of methods and has always made seed tests for farmers and growers as a part of its educational and service work.

Citizens of the state may send samples for testing with the understanding that the results will be published but the number and distribution of such samples is not sufficient to furnish real information as to the quality of seed offered for sale on the open market. The quality of field and vegetable seeds has steadily risen as farmers have learned to demand better seeds, but there is occasionally a suggestion that some seed, especially that sold in small packets, is not as good as it should be. With the purpose of examining such seed and determining its quality this study was made.

The seed was purchased in sealed packets at retail prices ranging from 5 cents to 20 cents each. The tests made were for germination only, there being no consideration given to the purity of the sample; to the size of the packets; to the weight of the seed; to its freedom from disease; or to any other point.

The standard methods of procedure were followed in making the tests. In brief, 200 seeds were selected from each sample to be germinated. These seeds were put in a standard germinating chamber in duplicate lots of 100 seeds each, the smaller seeds being placed on a substratum of blotting paper, and the larger seed such as corn, peas, and beans, on flannel cloth. The substratum was kept moist by daily applications of unsterilized water. Each sample of seed was kept in the germinating chamber for the standard number of days required to germinate such seed. In no case was any sample allowed any special consideration.

SEASON OF 1925.

In 1925, the Station agent purchased in the course of his sampling trips 57 samples representing the stock of 14 growers or distributors. These were tested for germination and the results are given in Table I.

TABLE I. SEED GERMINATION TESTS OF 1925.

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Per cent of Germination
F. T. Bliss Hardware Co., South Manchester.			
2447	Carrot, Danvers Half Long	F. T. Bliss Hardware Co.,	72.0
2446	Lettuce, Hartford Bronze Head	South Manchester.	85.5
2445	Spinach, Long Standing	" " " "	82.5
W. A. Burpee & Co., Philadelphia, Penn.			
2470	Carrot, Long Orange	Harrison & Gould, Milford.	73.5
2472	Lettuce, Big Boston	" " "	74.5
2471	Onion, Yellow Globe	" " "	91.0
Clapp & Treat, Hartford, Conn.			
2465	Cucumber, White Spine	S. P. Strople, New Britain.	95.0
2464	Lettuce, Big Boston	" " " "	75.0
2466	Onion, Danvers Yellow Flat	" " " "	91.0
D. M. Ferry, Detroit, Mich.			
2435	Carrot, Imp. Long Orange	F. B. Newton, Plainville.	71.0
2437	Corn, Early Sweet	" " "	92.0
2433	Lettuce, Simpson's Early Curled	" " "	94.5
2436	Onion, Imp. Yellow Globe	" " "	93.5
2438	Peas, Nott's Excelsior	" " "	87.5
2434	Spinach, Thick Leaf Round Seeded	" " "	76.5
Chas. C. Hart Seed Co., Wethersfield, Conn.			
2422	Carrot, Danvers Half Long Stump Root..	G. W. Thorpe, West Cheshire.	82.0
2420	Corn, Hart's Early Dawn	" " " "	92.5
2421	Peas, Nott's Excelsior Early Dwarf	" " " "	77.0
2454	Lettuce, Big Boston	Bacon Bros., Middletown.	83.5
2456	Onion, Red Wethersfield	" " "	94.5
Lake Shore Seed Co., Buffalo, N. Y.			
2475	Corn, Ea. Minnesota	Collins & Freeman, Branford.	91.0
2473	Lettuce, Salamander	" " "	82.0
2476	Onion, Southport Yellow Globe	" " "	83.5
2474	Spinach, Round Leaf	" " "	63.5
D. Landreth Seed Co., Bristol, Penn.			
2469	Carrot, Danvers Half Long	Stillman Hardware Co.,	77.0
2468	Lettuce, Salamander	New Canaan.	82.0
2467	Onion, Sport Red Globe	" " "	85.5
Lyman Seed Co., Springfield, Mass.			
2453	Cucumber, White Spine	Bacon Bros., Middletown.	96.5
2455	Spinach, Thick Leaf	" " "	76.0

TABLE I. SEED GERMINATION TESTS OF 1925—*Concluded.*

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Per cent of Germination
New Britain Seed Store, New Britain, Conn.			
2457	Carrot, Danvers Half Long	S. P. Strople, New Britain.	74.5
2459	Lettuce, Big Boston	" " " "	84.0
2458	Onion, Red Wethersfield	" " " "	57.5
Northrup-King Co., Minneapolis, Minn.			
2426	Beet, Early Blood Turnip	F. W. Woolworth Co.,	78.0
2423	Carrot, Imp. Danvers Half Long	Winsted.	84.0
2424	Lettuce, Grand Rapids	" " " "	51.5
2425	Lettuce, Round Thick Leaf	" " " "	80.5
2427	Onion, Large Wethersfield	" " " "	87.0
2428	Peas, American Wonder	" " " "	95.5
Olds & Whipple, Hartford, Conn.			
2461	Cucumber, Boston Pickling	S. P. Strople, New Britain.	93.5
2460	Lettuce, Early Curled Silesia	" " " "	74.0
2462	Onion, Southport Red Globe	" " " "	94.5
2463	Spinach, Long Standing	" " " "	73.5
Page Seed Co., Greene, N. Y.			
2448	Carrot, Chantenay	R. W. Hine, Cheshire.	76.5
2451	Corn, Stowell's Evergreen	" " " "	86.0
2449	Lettuce, Grand Rapids	" " " "	91.0
2450	Onion, Wethersfield	" " " "	83.0
2452	Spinach, Thick Leaved	" " " "	61.0
J. B. Rice Seed Co., Cambridge, N. Y.			
2442	Carrot, Danvers Half Long	Bristol Grain Co., Bristol.	73.5
2444	Corn, Country Gentleman	" " " "	72.5
2440	Lettuce, Big Boston	" " " "	81.0
2441	Onion, Wethersfield Large Red	" " " "	83.0
2439	Peas, Premium Gem Dwarf	" " " "	89.5
2443	Spinach, Bloomsdale Savoy	" " " "	78.5
Ross Bros. Co., Worcester, Mass.			
2432	Beet, Crosby's Egyptian	W. R. Bosworth, Woodstock.	80.5
2430	Carrot, Danvers Half Long	" " " "	77.5
2431	Lettuce, Big Boston	" " " "	81.0
2429	Onion, Yellow Globe Danvers	" " " "	90.0

SEASON OF 1926.

The inspection of 1925 showed some differences in quality but in our opinion did not include a sufficient number of samples to warrant publication. In order to secure this more complete sampling the coöperation of the Commissioner of Agriculture, Honorable Philo T. Platt, was solicited and readily granted. Through the efforts of the staff of the Market Reporting Service of the State Department of Agriculture it was possible to obtain 238 samples, representing 10 growers or distributors. These were all "packet seeds" purchased in the open market by the market reporters and paid for by the Station. The results of the germination tests are given in Table II.

TABLE II. SEED GERMINATION TESTS OF 1926.

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Per cent of Germination
	The American Seed Co., Detroit, Mich.		
2845	Beans, Dwarf Golden Wax	S. S. Kresge Co., Danbury.	82.0
2846	“ Kentucky Wonder	“ “ “ “	56.5
2854	Beet, Early Egyptian Blood Turnip	“ “ “ “	60.0
2855	“ “ Blood Turnip	“ “ “ “	66.0
2840	Carrot, Oxheart	“ “ “ “	40.5
2841	“ Danvers Half Long	“ “ “ “	31.5
2861	Corn, Country Gentleman	“ “ “ “	63.0
2842	Cucumber, Early White Spine	“ “ “ “	87.5
2864	“ Boston Pickling	“ “ “ “	95.5
2856	Lettuce, Early Prize Head	“ “ “ “	61.5
2857	“ Butter	“ “ “ “	31.0
2858	“ Grand Rapids	“ “ “ “	91.0
2844	Peas, Extra Early	“ “ “ “	83.5
2843	Radish, Early Long Scarlet	“ “ “ “	41.5
2862	“ Short Top Early Scarlet Turnip..	“ “ “ “	75.5
2863	“ Early Scarlet Globe	“ “ “ “	73.5
2839	Squash, Early Summer Crookneck	“ “ “ “	*
2859	“	“ “ “ “	58.0
2860	Spinach, Improved Thick Leaved	“ “ “ “	*
2833	“ “ “ “	“ “ “ “	25.5
	W. Atlee Burpee & Co., Philadelphia, Penn.		
3007	Beans, Bountiful	Jackson-Marvin Hdw. Co.,	94.5
3008	“ Burgess Stringless Green Pod	“ “ “ “ Westville.	98.0
3009	“ White Wax Bush	“ “ “ “	97.0
3010	“ Brittlewax	“ “ “ “	97.0
2998	Beet, Black Red Ball	“ “ “ “	88.5
2999	“ Columbia	“ “ “ “	*
3000	“ Detroit Dark Red	“ “ “ “	78.0
3001	“ Burpee's Improved Blood Turnip ..	“ “ “ “	83.5
2973	Carrot, Chantenay	“ “ “ “	48.5
2974	“ Danvers Half Long Orange	“ “ “ “	62.0
2975	“ Oxheart	“ “ “ “	74.5
2976	“ Burpee's Improved Long Orange..	“ “ “ “	71.0
2984	Cucumber, Fordhook	“ “ “ “	97.5
2985	“ Burpee's Fordhook Famous ..	“ “ “ “	98.5
2986	“ Fordhook Pickling	“ “ “ “	55.5
2987	“ Green Prolific	“ “ “ “	93.5
3002	Lettuce, Big Boston	“ “ “ “	97.5
3003	“ May King	“ “ “ “	98.0
3004	“ Iceberg	“ “ “ “	96.5
3005	“ Wonderful	“ “ “ “	93.5
2980	Radish, New White Icicle	“ “ “ “	72.0
2981	“ Burpee's Earliest	“ “ “ “	76.5
2982	“ “ Rapid Red	“ “ “ “	77.5
2983	“ “ Scarlet Globe	“ “ “ “	95.0
2977	Spinach, Henderson's Long Green	“ “ “ “	51.0
2978	“ “ Burpee's Victoria	“ “ “ “	38.5

TABLE II. SEED GERMINATION TESTS OF 1926—Continued.

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Per cent of Germination
	W. Atlee Burpee & Co., Philadelphia, Penn.—Cont.		
2979	Spinach, Norfolk Savoy-leaved	Jackson-Marvin Hdw. Co.,	43.5
3006	" Burpee's Princess Juliana	Westville.	84.0
	Clapp & Treat, Inc., Hartford, Conn.		
2961	Beans, Golden Wax	Clapp & Treat, Inc., Hartford.	98.0
2962	" Six Weeks	" " " "	97.0
2969	Beet, Eclipse	" " " "	77.5
2970	" Early Blood Turnip	" " " "	82.5
2971	" Crosby's Egyptian	" " " "	75.5
2972	" Bassano	" " " "	85.5
2959	Carrot, Improved Long Orange	" " " "	*
2960	" Danvers Half Long	" " " "	66.5
2951	Cucumber, Improved White Spine	" " " "	80.5
2952	" Green Cluster	" " " "	90.5
2953	" Early Frame	" " " "	85.5
2954	" Improved Long Green	" " " "	82.5
2965	Lettuce, Hartford Bronze Head	" " " "	3.5
2966	" Cos Trianon	" " " "	*
2967	" Simpson's Early Curled	" " " "	9.5
2968	" May King	" " " "	1.0
2955	Radish, Early Scarlet Turnip	" " " "	76.0
2956	" French Breakfast	" " " "	83.5
2957	" Icicle	" " " "	69.0
2958	" Round Black Spanish	" " " "	80.0
2947	Spinach, New Zealand	" " " "	76.0
2948	" Thick Leaved	" " " "	*
2949	" Long Standing	" " " "	*
2950	" Round	" " " "	85.0
	D. M. Ferry & Co., Detroit, Mich.		
3029	Beans, Golden Wax Bush	A. H. Watt, Redding Ridge.	78.0
3030	" Dwarf Unrivalled Wax Bush	" " " "	97.0
3055	Beet, Early Blood Turnip	" " " "	61.5
3056	" Detroit Dark Red	" " " "	69.0
3057	" Crosby's Egyptian	" " " "	66.0
3054	Cabbage, Mammoth Rock Red	" " " "	68.5
3034	Carrot, Early Scarlet Horn	" " " "	58.5
3035	" Chantenay	" " " "	70.0
3036	" Half Long Scarlet	" " " "	54.0
3037	" Danvers	" " " "	57.5
3044	Cucumber, Boston Pickling	" " " "	46.0
3045	" Improved Long Green	" " " "	47.5
3046	" Early White Spine	" " " "	84.0
3047	" Short Green	" " " "	68.0
3038	Lettuce, Mammoth Black Seeded Butter..	" " " "	80.5
3039	" Ferry's Early Prize Head	" " " "	90.5
3041	" California Cream Butter	" " " "	86.0
3042	" May King	" " " "	90.0

TABLE II. SEED GERMINATION TESTS OF 1926—Continued.

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Per cent of Germination
D. M. Ferry & Co., Detroit, Mich.—Cont.			
3043	Lettuce, Big Boston	A. H. Watt, Redding Ridge.	94.5
3040	" Black Seeded Simpson	" " " "	97.5
3049	Radish, Icicle	" " " "	88.5
3050	" Early Scarlet Turnip White Tip ..	" " " "	86.5
3051	"	" " " "	87.0
3052	" French Breakfast	" " " "	85.5
3053	" Improved Chartier	" " " "	84.5
3031	Spinach, Long Standing Prickly Seeded..	" " " "	63.5
3032	" New Zealand	" " " "	3.0
3033	" Thick Leaved Round	" " " "	68.0
3048	Squash, Summer Crookneck	" " " "	62.0
The Chas. C. Hart Seed Co., Wethersfield, Conn.			
2940	Beet, Early Dewing's Blood Turnip	H. E. Meekers, Danbury.	73.0
2941	" Detroit Dark Red	" " " "	89.5
2932	Carrot, Danvers Half Long	" " " "	60.5
2928	Cucumber, Improved White Spine	" " " "	82.0
2929	" Boston Pickling	" " " "	70.5
2930	" Davis Perfect	" " " "	76.0
2935	Lettuce, Early Prize Head	" " " "	97.5
2936	" Simpson's Early Curled	" " " "	77.0
2937	" Big Boston Head	" " " "	93.0
2931	Parsnip, Long Smooth Sugar	" " " "	48.0
2945	Radish, Early Round Scarlet	" " " "	83.5
2934	Sage	" " " "	84.0
2946	Squash, Giant Summer Crookneck	" " " "	85.5
2933	Spinach, Early Giant Thick Leaf	" " " "	76.0
Lake Shore Seed Co., Dunkirk, N. Y.			
3025	Beans, Henderson's Bush Lima	W. E. Daley, Bethel.	79.0
3026	" Red Valentine	" " " "	33.0
3014	Beet, Dewing's Improved Blood	" " " "	67.0
3015	" Detroit Dark Red	" " " "	56.0
3020	Carrot, Oxheart	" " " "	16.5
3021	" Danvers	" " " "	67.0
3023	Corn, Stowell's Evergreen	" " " "	62.0
3024	" Golden Bantam	" " " "	77.0
3016	Cucumber, Peerless White Spine	" " " "	86.5
3018	" Improved Long Green	" " " "	43.5
3017	" Boston Pickling	" " " "	61.5
3011	Lettuce, Prize Head	" " " "	0
3012	" Cos	" " " "	42.5
3013	" Wilson's Early Cabbage	" " " "	0
3028	Radish, Early Red Turnip	" " " "	37.5
3019	" Assorted	" " " "	22.0
3027	Squash, Golden Summer Crookneck	" " " "	26.5
3022	Spinach, Round Leaf	" " " "	57.5

TABLE II. SEED GERMINATION TESTS OF 1926—Continued.

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Per cent of Germination
	Northrup-King Co., Minneapolis, Minn.		
2834	Beans, Kentucky Wonder Pole	F. W. Woolworth Co.,	82.0
2835	" Early Dwarf Black Wax	Hartford.	93.0
2852	Beet, Edmund's Improved Blood Turnip..	" " "	95.5
2853	"	" " "	86.5
2826	Carrot, Chantenay	" " "	62.5
2827	"	" " "	59.5
2828	" Oxheart	" " "	73.5
2829	Cucumber, Improved White Spine	" " "	89.0
2830	" Long Green	" " "	70.5
2836	" Chicago Pickling	" " "	98.0
2847	Lettuce, Grand Rapids	" " "	98.0
2848	" Black Seeded Simpson	" " "	100.0
2849	" Improved Hanson Head	" " "	92.5
2823	Radish, Early Scarlet Turnip	" " "	90.0
2824	" French Breakfast	" " "	98.0
2825	" Sterling White Tip	" " "	96.5
2831	Spinach, Round Thick Leaved	" " "	*
2837	Squash, Golden Summer Crookneck	" " "	94.0
2832	Sweet Corn, Peep o' Day	" " "	90.0
2833	" " Golden Bantam	" " "	90.0
	Olds & Whipple, Inc., Hartford, Conn.		
2887	Beans, Burpee's Stringless	Olds & Whipple, Inc.,	97.0
2888	" Golden Wax	Hartford.	97.5
2905	Beet, Dewing's Blood	" " "	71.5
2906	" Crosby's Egyptian	" " "	76.0
2907	" Detroit Dark Red	" " "	70.5
2908	" Swiss Chard	" " "	82.5
2872	Carrot, Early Half Long Scarlet	" " "	55.0
2873	" Danvers Half Long	" " "	65.5
2886	" Early Half Long Scarlet	" " "	54.5
2882	Cucumber, London Long Green	" " "	86.5
2883	" Davis Perfect	" " "	86.0
2884	" White Spine	" " "	96.0
2885	" Boston Pickling	" " "	94.0
2874	Lettuce, New York	" " "	100.0
2878	" Crisp-as-ice	" " "	91.0
2879	" Early Curled Silesia	" " "	97.0
2880	" Hanson Head	" " "	*
2881	" Tom Hannock	" " "	98.0
2865	Radish, Early Scarlet Turnip	" " "	69.0
2866	" French Breakfast	" " "	52.5
2867	" Early Scarlet White Tip	" " "	59.5
2870	" Long Scarlet	" " "	76.5
2868	Spinach, New Zealand	" " "	52.0
2869	" Large Viroflay	" " "	78.0
2871	" Round Thick Leaf	" " "	68.5

TABLE II. SEED GERMINATION TESTS OF 1926—*Concluded.*

Test Number	Grower or Distributor; and Variety of Seed	Sold by	Percent of Germination
The Page Seed Co., Greene, N. Y.			
2912	Beans, Page's Golden	H. E. Meekers, Danbury.	86.0
2913	" Davis White	" " "	86.0
2900	Beet, Crosby's Egyptian	" " "	66.5
2901	" Detroit Dark Red	" " "	75.0
2902	" Early Blood Turnip	" " "	83.0
2889	Carrot, Oxheart	" " "	52.5
2890	" Improved Long Orange	" " "	54.5
2891	" Danvers Half Long	" " "	41.0
2909	Corn, Golden Bantam	" " "	83.5
2910	" Stowell's Evergreen	" " "	72.0
2911	" Early White Cory	" " "	91.0
2895	Cucumber, Long Green	" " "	82.5
2896	" Early White Spine	" " "	95.0
2897	" Paris Evergreen	" " "	90.5
2903	Lettuce, Grand Rapids	" " "	74.0
2904	" Early Prize Head	" " "	95.0
2893	Radish, French Breakfast	" " "	83.5
2894	" Early Scarlet White Tip	" " "	96.0
2892	Squash, Summer Crookneck	" " "	70.0
2898	Spinach, Bloomsdale	" " "	56.5
2899	" Thick Leaved	" " "	*
The Rice Seed Co., Cambridge, N. Y.			
2925	Beans, Dwarf Rust-proof Golden Wax ..	H. E. Meekers, Danbury.	87.0
2926	" Black Butter	" " "	93.0
2942	Beet, New Dark Red Eclipse	" " "	76.5
2943	" Dewing's Early Blood Turnip	" " "	58.0
2944	" Long Smooth Dark Blood	" " "	62.0
2917	Carrot, True Danvers Half Long	" " "	52.0
2918	" Early French Short Horn	" " "	45.0
2927	" Rice's Improved Long Orange ..	" " "	*
2923	Corn, Golden Bantam	" " "	*
2924	" Crosby's Early	" " "	63.0
2919	Cucumber, Improved Long Green	" " "	*
2920	" " Early White Spine..	" " "	91.0
2921	" Extra Early Green Prolific ..	" " "	50.5
2938	Lettuce, Early Curled Silesia	" " "	78.5
2939	" Black Seeded Simpson	" " "	91.5
2914	Radish, True French Breakfast	" " "	70.5
2915	" Extra Early Scarlet Turnip	" " "	67.5
2916	" Early Scarlet Turnip White Tip..	" " "	82.0
2922	Squash, Giant Early Summer Crookneck..	" " "	79.0

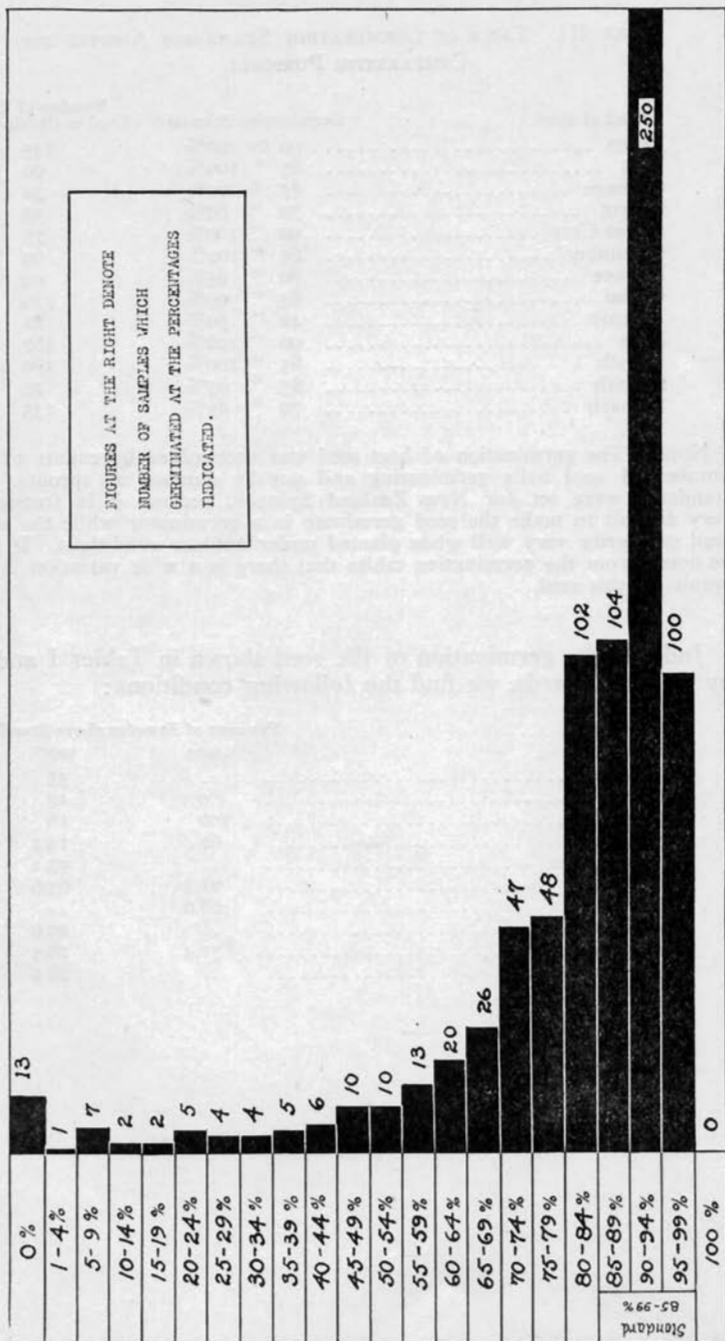
*NOTE: This sample showed a variance of 10% or more between the duplicate tests. An insufficient quantity of seed on hand prevented retesting of the sample.

GERMINATION STANDARDS FOR VEGETABLES.

In the absence of official standards of germination for vegetable seed we present in Table III a standard of comparison for this particular study. These standards were obtained by plotting a frequency curve of tests made in our laboratory for a period of ten years of the several seeds, and taking the classes between which the largest number of units occurred as the standard. This method may be somewhat inaccurate, especially where only a few samples are taken, but it at least gives a good indication of what good seed should germinate under favorable conditions. The following chart of onion seed illustrates the method described above.

RESULTS OF GERMINATION TESTS OF 779 SAMPLES OF ONION SEED

Per cent
of Germination



250

TABLE III. TABLE OF GERMINATION STANDARDS ADOPTED FOR COMPARATIVE PURPOSES.

Kind of Seed	Germination Standard	Number of Tests
		Used to Obtain Data
Beans	90 to 100%	145
Beet	85 " 100%	99
Cabbage	85 " 100%	32
Carrot	70 " 80%	59
Sweet Corn	90 " 100%	75
Cucumber	85 " 100%	69
Lettuce	80 " 95%	94
Onion	85 " 99%	779
Parsnip	40 " 50%	11
Peas	90 " 100%	167
Radish	85 " 100%	160
Squash	85 " 95%	29
Spinach	70 " 85%	135

NOTE: The germination of beet seed was determined by counts of the number of seed balls germinating and not by number of sprouts. No standards were set for New Zealand Spinach, because it is frequently very difficult to make the seed germinate in a germinator while the same seed may grow very well when planted under outdoor conditions. It may be noted from the germination tables that there is a wide variation in the results on this seed.

Judging the germination of the seed shown in Tables I and II by these standards, we find the following conditions:

Seed	Per cent of Samples above Standard	
	1925	1926
Beans	55
Beet	0	12
Carrot	100	16
Corn	60	14.2
Cucumber	53.1
Lettuce	71.4	63.6
Onion	66.6	..
Radish	29.0
Spinach	71.4	28.5
Squash	28.5