
University of Vermont and State Agricultural College
Vermont Agricultural Experiment Station
BURLINGTON, VERMONT

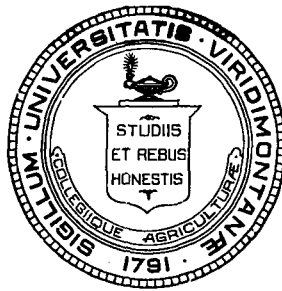
AGRICULTURAL SEED

By ANNA S. LUTMAN

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The agricultural seed sold in Vermont in 1936 was of excellent quality. Nearly 600 samples were tested. Relatively few lots were found to be deficient in respect either to purity or viability.

The discriminating farmer will see to it that the seed he buys is properly labeled and that its purity and germination guaranties are high.

BULLETIN 410: AGRICULTURAL SEED

By ANNA S. LUTMAN

This bulletin sets forth the results secured in the inspection of seed samples collected during the spring of 1936, when the Station sampling agents visited many Vermont towns and cities and collected about 760 samples of agricultural seed offered for sale by local dealers. Five hundred and ninety of these were tested, more than 150 duplicates being discarded. These group as follows:

Alfalfa	27	Corn	86	Rye	5
Barley	29	Millet, Hungarian ...	27	Soy beans	22
Bluegrass	6	Millet, Japanese	33	Sudan grass	15
Buckwheat	5	Mixtures	28	Timothy	59
Clover, alsike	40	Oats	37	Vetch	12
Clover, red	57	Peas, Canada Field ..	20	Wheat	8
Clover, sweet	12	Rape	4	Miscellaneous	7
Clover, white	7	Redtop	44		

No samples were secured of 28 licensed brands listed below:

- Barber & Bennett, Inc.* Barley (Two-row).
Carver-Dickinson Seed Co., Inc. Clover, Alsike (Ace); Millet, Golden; Kentucky Bluegrass; Spring Rye; Clover (White).
Perley E. Davis. Corn.
Eastern States Farmers' Exchange. Barley (Two-row); Buckwheat (Selected); Mixtures—Meadow upland, Meadow lowland, Pasture light, Rye-Vetch, Wheat-Vetch; Orchard Grass; Wheat (Selected); Rye (Selected).
Elmore Milling Co. Oats (Elmore Seed).
Holbrook Grocery Co. Alfalfa (White Mountain); Clover, Red (White Mountain); Corn (White Mountain); Oats (White Mountain).
E. T. & H. K. Ide. Corn; Oats (Ideal Seed).
Page Seed Co. Clover, Alsike (Marvel); Clover, Red (Marvel); Timothy (Marvel).
Richford Feed Co. Canada Field Peas.
William G. Scarlett & Co. Clover, Alsike (Scarlett's); Clover, Red (Scarlett's).
Stanford Seed Co., Inc. Timothy (Honor).
C. H. Stearns & Co. Oats (Stearnco Recleaned).
Ray P. Webster. Oats (Saginaw Fancy Seed).
Whitney-Eckstein Seed Co. Clover, Alsike (Herald); Clover, Red (Eureka); Clover, Red (Herald); Millet, Golden; Seed Oats; Orchard Grass; Rape; Redtop (Eureka Fancy); Timothy (Gold Medal).
F. H. Woodruff & Sons. Corn; Canada Field Peas.

Concerning these unsampled brands it may be said that seed sampling is an exceptionally seasonal job. Seed usually comes into the State and is bought and sown within a few weeks. Sampling agents who are in the field in early April find little on sale. The "clean up" men sent out in May to secure samples of commercial fertilizer brands which have come into the State somewhat late in the spring, find seed on sale and sample it, taking each year many hundreds of samples; but obviously they can not find every brand. It is fair to assume, moreover, that in several instances relatively few sales were made. In

the present inspection seven-eighths of the 247 licensed brands were sampled and analyzed. Samples are taken in every instance by men who have been trained in and had experience in seed-sample taking. The fact that no error in any case has been made in sampling is determined, so far as may be, by correspondence with the local seed dealer; that is to say, if doubt arises in any case it is ascertained that he actually did have for sale the brand in question at the time of sampling. No statement indicating failure to meet guaranty is published that is not amply substantiated by repeated analysis. Of course the Station can not assert in any given case that the material which is being offered for sale is what was furnished by the original purveyor. Substitution may have been made. A lot of seed may be put into a bag bearing the label of another seed which may have been entirely sold out and the sampling agent not advised of the fact that the bag has been thus used and that the stencil or attached tag does not represent its contents. All that the Station can assert in respect to its report on samples failing substantially to fulfill the guaranties made by purveyors is that the analyses represent the goods which were being offered for sale—only this and no more.

BRANDS SAMPLED AND ANALYZED

The following tables set forth the results secured in the 1936 inspection. Detailed purity tests were not made in most cases, being carried only so far as to give assurance that the purveyor's guaranty was maintained in fact and within the latitude of variation established by the Association of Official Seed Analysts. Analyses are always completed in doubtful cases, of which there were few or none this year. As was said above, retests were always made of samples found to yield figures below those of the guaranties made in their behalf.

Tables I to III (pages 6 to 12) list brands (I, single seeds; II and III mixtures) of agricultural seed which, as judged by the samples drawn from dealers' stocks and analyzed at the Station, have *substantially fulfilled the guaranties* made by the wholesalers. These tables furnish the following information:

1. The name and address of the purveyor.
2. The common name of the seed, i.e., ALFALFA, BARLEY, TIMOTHY and ALSIKE.
3. The brand name and numerical designation of the seed, i.e., Blue Ribbon, B-378.¹

¹The "numerical designation" is placed upon the package by the vendor and serves to identify the lot of seed.

4. The purity guaranty made by the vendor setting forth the percentage of pure seed guaranteed to be present.

5. The germination guaranty made by the vendor setting forth the viability of the seed as determined by his tests, usually made by him between December to March preceding local sales. The hard seed content, if any (such occurs in alfalfa, clovers, vetch or mixtures containing them), claimed by the vendor is indicated after the percentage of germination, e.g., 87-8, 87 indicating the germination guaranty or "sprouts" and 8 the number of hard seed present in 100. This means that 87 percent of the seed germinated after it had been under test for the prescribed number of days, and an additional 8 percent of the seeds remained hard or impermeable. Just when these hard seeds will germinate can not be stated and for this reason their value is somewhat uncertain.

6. In certain cases, indicated by the * or **, slight shortages were noted in meeting the germination guaranties. A single asterisk (*) indicates that the station germination test fell short of the guaranty made by the vendor by from two to four percent; the double asterisk (**) that it fell short by from four to six or more percent. *These shortages are within the tolerance limits prescribed by the Association of Official Seed Analysts.* They were established because of the variation which is bound to occur in a natural product, because it inevitably happens that station germination tests are made from two to six months or more after the vendors' tests are made, and, finally, because seed viability lessens as the seed grows older. Hence the lots of seed where the * or * * are used are deemed to have substantially complied with the guaranties made in their behalf.

Tables I to III have to do with brands which have proved to be as good as or better than the guaranties made for them.

Tables IV-VI (pages 13-14) list the brands which are judged by the samples drawn from dealers' stocks and analyzed by the Station, *have failed to fulfill the guaranties made for them by their vendors.*

I. BRANDS SUBSTANTIALLY COMPLYING WITH GUARANTIES

Seed, brand name and numerical designation	Guaranties		Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination		WHOLESALE DEALER	Purity Germination
ALLIED SEED CO., INC., Philadelphia, Pa.			BARBER & BENNETT, INC., Albany, N. Y.		
ALFALFA,			ALFALFA,		
Grimm, Blue Ribbon, B-378	99.6	84-6	Grimm, 799	99.5	79-14
Grimm, Blue Ribbon, B-486	99.6	88-4	Grimm,	99.78	82-11
Grimm, Blue Ribbon, B-524	99.65	90-2	BARLEY,		
Grimm, Blue Ribbon, B-535	99.5	80-12	Six-row, 547	99	92
Grimm, Blue Ribbon, B-536	99.5	82-6	BUCKWHEAT,		
CLOVER,			300	98.5	95
Alsike, Blue Ribbon, B-166	98.5	80-10	CLOVER,		
Alsike, Blue Ribbon, B-166	98.5	80-10	Mammoth Red, 23-513	99	93-3
Alsike, Blue Ribbon, B-475	98.78	84-8	Red, 23-521	99	81-12
Alsike, Blue Ribbon, B-475	98.78	84-8	CORN,		
Alsike, Blue Ribbon, B-611	98.5	86-8	Golden Nugget, 72-212 ¹	99.5	90**
Medium Red, Blue Ribbon,			OATS,		
B-1287	99.5	86-4	North Western Seed, 5017	95.6	95
Medium Red, Blue Ribbon,				95.6	95
B-1659	99.5	86-6	RAPE,		
Medium Red, Blue Ribbon,			95-12	99.85	97
B-1659	99.5	86-6	RYE,		
Medium Red, Blue Ribbon,			Rosen Type Seed	98.5	90
B-1900	99.5	90-2	Spring 74-13	98.2	86
Medium Red, Blue Ribbon,			WHEAT,		
B-2027	99.5	88-3	Marquis Seed Spring, 842	98.25	95
Medium Red, Blue Ribbon,			BERKSHIRE COAL & GRAIN CO.,		
B-2062	99.5	86-5	North Adams Mass.		
White Blossom Sweet, Blue Rib-			OATS,		
bon, B-426	99.52	82-8	Pacific Coast Seed	95	90
Yellow Blossom Sweet, Blue Rib-			Pacific Coast Seed	95	90
bon, B-616	99.5	85	CHAMBERLAIN BEAN CO.,		
CORN,			Port Huron, Mich.		
Lancaster Co. Surecrop, Blue			PEAS,		
Ribbon, B	99	90	Canada Field	99	90
Yellow Sweepstakes, Blue Rib-			CHAMBERLAIN BEAN CO.,		
bon, S-1	99	90	Burlington, Vt.		
KENTUCKY BLUEGRASS,			CORN,		
Blue Ribbon, B-336	82.52	80	Davis Flint	98	90
MILLET,			W. F. COBB CO.,		
Hungarian, Blue Ribbon, 83-58	99.08	87	Franklin, Mass.		
Hungarian, Blue Ribbon, 83-59	99.08	87	CORN,		
Hungarian, Blue Ribbon,	98	80	Early Lakeside	98	92
Japanese, Blue Ribbon, 81-6	97.51	87	SUDAN GRASS	98.2	85
Japanese, Blue Ribbon, 81-14	97.85	88	COMMUNITY FEED STORES, INC.,		
Japanese, Blue Ribbon, 81-14	97.85	88	Westminster Station, Vt.		
PEAS,			OATS,		
Canada Field, Blue Ribbon, 18	99	92	Community Brand Seed	97.89	94
Canada Field, Blue Ribbon, C-20	99	90	ARTHUR R. CONE,		
REDTOP,			Buffalo, N. Y.		
Blue Ribbon, B-29	90	93	BARLEY,		
Blue Ribbon, B-37	92	90	35-42	98	92
Blue Ribbon, B-50	90	90	CLOVER,		
Blue Ribbon, B-51	90	90	Alsike, Anchor, 25-35	96.55	85-8
Blue Ribbon	90	90	Alsike, Anchor, 25-37	98	85-7
SOY BEANS,			Alsike, Arco, 25-37	98	85-7
Black Wilson, Blue Ribbon, C-9	99	90	Alsike, 25-46	96.18	83-9
SUDAN GRASS,			Mammoth Red, Anchor, 20-30	99.5	80-10
Blue Ribbon, B-10	98.5	80	Red, Anchor, 15-73	99.1	82-10
TIMOTHY,			Red, Arco, 15-93	99.5	85-7
Blue Ribbon, B-900	99.6	92	Red, Arco,	99.1	82-10
Blue Ribbon, B-900	99.6	92	White Blossom Sweet,		
Blue Ribbon, B-923	99.6	92	29-38	98.68	78-8
Blue Ribbon, B-949	99.6	92	CORN,		
Blue Ribbon, B-950	99.6	92	Arco, 80-199	98	91
E. W. BAILEY & Co.,			Ensilage, Arco, 80-216	98	90
Montpelier, Vt.			Early Lycoming, Arco, 80-199	98	91
BARLEY,			Golden Nugget, Arco, 83-57	98	90
Six-row Seed,	96	95	Pride of the North, Arco, 80-198	98	91
OATS,			Sanford Flint, Arco, 83-58	98	91
Seed, Pennant	99.5	98	MILLET,		
Seed, Pennant	99.5	98	Hungarian, 38-75	97.5	87
Seed, Pennant	99.5	98	Hungarian, 38-75	97.5	87
Seed, Pennant	99.5	98			

¹ Unguarantied as sold; guaranty supplied by shipper.

I. BRANDS SUBSTANTIALLY COMPLYING WITH GUARANTIES—Continued

Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination
ARTHUR R. CONE, Buffalo, N. Y. (concluded)		
Japanese, 38-78	98.5	84
Japanese, 38-78	98.5	84
Japanese, 38-78	98.5	84
PEAS,		
Canada Field, Arco, 40-32	98	90
REDTOP,		
Fancy, 30-24	95.29	90
Fancy, 30-25	90.8	90
Fancy, 30-26	95.29	90
Arco, 30-36	95	90
SOY BEANS,		
Arco, 42-46	98	91
Manchu, 42-49	98	92
SUDAN GRASS,		
70-28	98	88
TIMOTHY,		
Arco, 10-94	99.6	90
Arco, 10-102	99.69	92
Arco, 10-103	99.6	92
Arco, 10-107	99.65	92
Arco, 10-107	99.65	92
CRAVER-DICKINSON SEED Co., INC., Buffalo, N. Y.		
ALFALFA,		
Grimm, Affidavit, Pine Tree, 27-726	99.2	79-14
Grimm, Affidavit, Pine Tree, 27-726	99.2	79-14
Grimm, 27396, 27-711	99.72	82-12
BARLEY,		
Six-row, 71-11	98.34	90
Six-row, 71-11	98.34	90
Six-row	98	95
BUCKWHEAT,		
Japanese, Pine Tree, 86-27	99	90
CLOVER,		
Alsike, Pine Tree, 21-538	98	83-11
Alsike, 21-52	96.45	84-6
Medium Red, Ace, 24-5196	98.78	76-20
Medium Red, 24-531	98.68	82-11
Medium Red, Pine Tree, 24-55	99.1	85-10
Medium Red, Pine Tree, 24-56	99.2	82-16
White Blossom Sweet, 25-13	99.8	87-7
White Blossom Sweet, 23311	99.8	87-7
CORN,		
Bloody Butcher, 72-3	99	85
Conklin's Early Wonder, 72-314	99	90
Cornell 11, Dent	99	90
Golden Glow, 72-327	99	88
Golden Nugget, Pine Tree, 72-24	99.5	90
Golden Nugget, Pine Tree	99.5	90
Red Robin, Pine Tree, 72-355	99.5	90
Smoky Dent, Pine Tree, 72-3	99	85**
MILLET,		
Hungarian 83-58	99.08	85
Hungarian, 83-59	99.38	90
Hungarian, 83-59	99.38	90
Japanese, 81-5	98.36	89
Japanese, Pine Tree, 81-6	97.51	87
Japanese, Ace, 81-14	97.85	88
Japanese, Ace, 81-14	97.85	88
Japanese, 81-15	98.85	88
OATS,		
Seed, Pine Tree, 73-12	95.6	90
Seed, Pine Tree, 73-18	98.58	92
PEAS,		
Canada Field, Pine Tree, 85-23	99	95
Canada Field, Pine Tree, 85-23	99	95
Canada Field	99	95
RAPE,		
Dwarf Essex, Pine Tree, 95-16	99.37	90

Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination
CRAVER-DICKINSON SEED Co., INC., Buffalo, N. Y. (concluded)		
REDTOP,		
Ace, 41-420	91.4	90
Ace, 41-510	92	93
Pine Tree, 41-514	95	90
Pine Tree, 41-514	93.3	90
Pine Tree, 41-57	95.7	90
	92	93
SOY BEANS,		
Manchu, Pine Tree, 84-16	99.5	85
Manchu, Pine Tree, 84-16	99.5	85
SUDAN GRASS,		
Pine Tree, 98-814	98.28	93
Pine Tree, 98-814	98.28	93
TIMOTHY,		
Pine Tree, 66-540	99.8	95
Pine Tree, 66-548	99.73	94
Pine Tree, 66-556	99.6	94
Pine Tree, 66-589	99.75	93
Pine Tree, 66-599	99.6	95
VETCH,		
Winter, 99-24	99.45	81-15
Winter, 99-24	99.45	81-15
WHEAT,		
Spring, 75-26	98	94
DANVILLE GRAIN Co., Danville, Vt.		
OATS,		
Swedish Type Seed	98	95
DAVIS FEED Co., Rutland, Vt.		
OATS,		
Fancy Seed, 4325	99	98
Seed	99	98*
DELTA SALES Co., Delta, Pa.		
CORN,		
Kato Korn Growrite Ensilage, 68	99	90
Kato Korn Ensilage, 84	99	90
Kato Korn Ensilage, 115	99	90
A. DICKINSON Co., Chicago, Ill.		
ALFALFA,		
Grimm, Idaho Fancy, Pine Tree, 27834	99.72	74-18
Grimm, Idaho, Pine Tree, 27834	99.72	74-18
BARLEY,		
Six-row, 71246	98.16	94
Six-row, 71249	99.3	96
Six-row, 71249	99.3	96
Six-row, 71312	98.06	97
Six-row, 71312	98.06	97
CLOVER,		
Alsike, Ace, 211	98	77-15
Alsike, Ace, 211	98	77-15*
Alsike, Pine Tree, 2159	97.4	82-9
Mammoth Red, Pine Tree,		
23180	99	80-14
Mammoth Red, 23191	99.68	93
Medium Red, Ace, 24125	99	86-8
Medium Red, Ace, 24125	99	86-8
Medium Red, Pine Tree, 24266-7	99.1	84-12
Medium Red, Pine Tree, 24293	99	94
Medium Red, Pine Tree, 24316	99.04	88-9*
Medium Red, Pine Tree, 24337	99.14	87-7
Medium Red, Pine Tree, 24389	99.04	83-10
Medium Red, Pine Tree, 24389	99.04	83-10
Medium Red, Pine Tree, 24392	99.34	83-11
White Blossom Sweet, Pine		
Tree, 25580	99.5	90
White Blossom Sweet, 25625	99.28	82-10

I. BRANDS SUBSTANTIALLY COMPLYING WITH GUARANTIES.—Continued

Seed, brand name and numerical designation	Guaranties		Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination		WHOLESALE DEALER	Purity Germination
A. DICKINSON Co., Chicago, Ill. (concluded)			EASTERN STATES FARMERS' EXCHANGE Springfield, Mass. (concluded)		
MILLET,			MILLET,		
Hungarian, Pine Tree, 8315	99.3	90	Japanese	98	80
Hungarian, Pine Tree, 8315	99.3	90	Japanese	98	80
Hungarian, 8322	99.26	94	OATS,		
Japanese, 81170	98.54	85	Selected Seed	98	96
Japanese, Pine Tree, 81171	97.54	88	Selected Seed	98	90
PEAS,			Selected Seed	99	90
Canada Field, 85386	99.5	86	Upright	99.2	90
Canada Field, 83388	99.5	85	PEAS,		
Canada Field, 85387	99.5	90	Chang Field	99.4	85
REDTOP,				99.4	85
Ace, 41160	92	90	RAPE,		
Ace, 41168	92	90	Dwarf Essex	99	90
Ace, 41188	92.6	90	REDTOP,		
Ace, 41240	91	90	Fancy Solid	95	90
Pine Tree, 41157	95	90	Fancy Solid	95	90
Pine Tree, 41255	90.1	90	SOY BEANS,		
Pine Tree, 41269-71	95.9	90	Dunfield	99.25	85
Pine Tree, 41269-71	95.9	90	Dunfield	99.25	85
Pine Tree, 41269-71	95.9	90	Dunfield	98.5	85
Pine Tree, 41186	95	90	Manchu	99.25	85
SOY BEANS,			Manchu	99.25	85
Illini, 94338	99.5	90	SUDAN GRASS,		
Manchu, 84346	99.5	90		98.5	85
Wilson, 84289	99.5	86		98.5	85
SUDAN GRASS,				97.75	90
98201	96.58	85	SUNFLOWER,		
TIMOTHY,				99	85
Pine Tree, 69331	99.7	94		99	85
Pine Tree, 69409	99.7	94	TIMOTHY,		
Pine Tree, 69409	99.7	94		99.5	90
Pine Tree, 69410	99.7	95		99.5	90
Pine Tree, 69471	99.7	95	VETCH,		
Pine Tree, 69498	99.7	95	Hairy	99.2	75-15
Pine Tree, 69620	99.65	94	Hairy	99.2	75-15
Pine Tree, 69651-2	99.7	94			
Pine Tree, 69666	99.65	90			
DOUGHTON SEED Co., Jersey City, N. J.					
ALFALFA,			THOS. W. EMERSON Co., Boston, Mass.		
Grimm, Affidavit, AL-219	99.56	75-15	KENTUCKY BLUEGRASS,		
TIMOTHY,			Emerson's	99.19	77
Freedom, T-418	99.75	90	JOHN W. ESHELMAN & SONS, Lancaster, Pa.		
EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.			OATS,		
ALFALFA,			Eshelman Red Rose Seed	98.5	98
Grimm	99.35	73-20	Eshelman Red Rose Seed	98.5	98
Grimm	99.35	73-20	FREDERICK SEED Co., Murray, Neb.		
Variegated	99.25	75-15	CORN,		
BARLEY,			Minnesota 13, Golden Rod	99	95
Selected	98	90	CHAS. C. HART SEED Co., Weathersfield, Conn.		
Selected	96.75	90	CORN,		
Wisconsin 38	98.75	90	Golden Nugget	99	90
CLOVER,			West Branch Sweepstakes	99	90
Alsike	98.75	75-19	HOLBROOK GROCERY Co., Keene, N. H.		
Alsike	98.75	75-19	CLOVER,		
Mammoth Red	99.3	85-7	Alsike, White Mountain	99	94
Medium Red	99.2	76-16	Alsike	95	92**
Medium Red	99.2	76-16	Special Red, A-320	99	92**
White Blossom Sweet	99.25	80-10	MILLET,		
White Blossom Sweet	99.25	80-10	Hungarian, 8322	99.2	94
White Dutch	98.25	83-3	Hungarian, 8322	99.2	94
CORN,			Hungarian	98.5	86
Cornell 11	99.25	90	Japanese, 81170	98	85
Cornell 29-3 Hybrid	99.25	80	PEAS,		
Cornell 29-3 Hybrid	99.25	80	Canada Field, Monadnock	99	95
Golden Nugget	99.25	90	REDTOP,		
Lancaster Sure Crop	99.25	85	Extra Fancy, White Mountain	95	90
West Branch Sweepstakes	99.25	85	XX	90	90
West Branch Sweepstakes	99.25	85	TIMOTHY,		
KENTUCKY BLUEGRASS,			Special, Wells River	98	91
	89.7	75	Monadnock, Special, T-69577	99.5	94
MILLET,					
Hungarian	98.6	80			
Hungarian	98.6	80			

I. BRANDS SUBSTANTIALLY COMPLYING WITH GUARANTIES—Continued

Seed, brand name and numerical designation	Guaranties		Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination		WHOLESALE DEALER	Purity Germination
HOLBROOK GROCERY Co., Keene, N. H. (concluded)			St. ALBANS GRAIN Co., St. Albans, Vt.		
VETCH,			BARLEY,		
Winter, V-4157		.. ¹	Fancy 6-rowed Seed	96	95
	W. B. JOHNSON & SON, Essex Junction, Vt.		Fancy 6-rowed Seed	96	95
			Fancy 6-rowed Seed	96	95
OATS,			OATS,		
Johnson's Re-cleaned Seed,			Fancy Seed, Hygrade	97	92
Swedish Type	98	95	Fancy Seed, Hygrade	97	92
Johnson's Re-cleaned Seed,			Fancy Seed, Hygrade	97	92
Swedish Type	98	95	Fancy Seed, Wirthmore	98	95
	F. W. KELLEY, St. Johnsbury, Vt.		Fancy Seed, Wirthmore	98	95
			Fancy Seed, Wirthmore	98	95
OATS,			W. M. G. SCARLETT & Co., Baltimore, Md.		
Xtragood, Re-cleaned Seed	97	96	CLOVER,		
Xtragood, Re-cleaned Seed	97	96	Scarlett's White, 490	99.45	80-10
Xtragood, Re-cleaned Seed (Sunshine)	97	96	REDTOP,		
	PAGE SEED Co., Greene, N. Y.		Scarlett's, 633	93	90
			TIMOTHY,		
CORN,			Scarlett's, 2162	99.6	90
Cornell 11, Paseco, 5010	99	90	SEABURY GRAIN Co., Waterbury, Vt.		
Early Leaming, Paseco, 5210	99	90	OATS,		
Golden Nugget, Paseco, 5035	99	92	North Western, Swedish Type		
Improved Leaming, Paseco, 5020	99	90	Seed	99	98
Luce's Favorite, 5130	99	92*	STANFORD SEED Co., INC., Buffalo, N. Y.		
Minnesota, 13, Paseco, 5100	99	92	ALFALFA,		
New York State 8-Row Yellow,			Grimm, 2056	99.55	78-18
Paseco, 5120	99	94	Grimm, 2056	99.55	78-18
Perry's Fodder	99	90	1971	99.37	82-15
Pride of Nishua, Paseco, 1280A	99	91	BARLEY,		
Stanford White Flint, 5110	99	90	Alpha, 2243	98.5	92
Smoky Dent, Paseco, 5095	99	90**	6-row, 5861	97.75	94
West Branch Sweepstakes,			6-row, 5861	97.75	94
Paseco, 5015	99	92	6-row, 5863	97.75	94
West Branch Sweepstakes,			6-row, 5863	97.75	94
Paseco, 5220	99	90	6-row, 5781	98.01	93
MILLET,			2-row, 5729	97.32	93
Hungarian, J6-2936	99.54	85	2-row, 5758	99.5	94
Japanese, J5A35	99	97	BUCKWHEAT,		
Japanese, J5A36	99	97	Silver Hull, 5893	99.5	90
Japanese, J5B36	97	96	CLOVER,		
Japanese, J5B36	97	96	Alsike, Honor, 5730	99	85.5-12
	PARK & POLLARD Co., Buffalo, N. Y.		Alsike, Liberty, 2352	98	83-10
OATS,			Alsike, Liberty, 5735	97.54	86.5-10
Overall, Re-cleaned Selected	96	97	Alsike, Liberty, 5735	97.54	86.5-10
Overall, Re-cleaned Selected	96	97	Alsike, Liberty, 5787	97.56	84.5-10
			Alsike, Liberty, 5887	98	83-10
	PEPPARD SEED Co., Kansas City, Mo.		Alsike, Liberty, 5905	98	84-10
ALFALFA,			Crimson, 2215	98.73	75
Grimm, Pepsco, 486	99.46	85-10	Mammoth Red, Liberty, 5708	99.18	90.5-2.5
	RALSTON-PURINA Co., St. Johnsbury, Vt.		Medium Red, Liberty, 1575	99	90-6
OATS,			Medium Red, Liberty, 2347	99.14	85-7
Fancy Selected Seed	97	94	Medium Red, Liberty, 5810	99.02	93-3
Fancy Selected Seed	97	94	Medium Red, Liberty, 5810	99.02	93-3
Fancy Selected Seed	97	94	Medium Red, Liberty, 5842	99.07	84-8
	DAVID H. RISING, Easton, Pa.		Medium Red, Liberty, 5842	99.07	84-8
CORN,			White Blossom Sweet, 2087	99.5	87.5-9
Early King	99	96	White, 2247	98.5	83-9
Gold Dollar	99	96	CORN,		
Pride of New York State	99	96	Cornell 11, Honor, 5816	98	*90
	ROSS BROS. Co., Worcester, Mass.		Davis Flint, 5856	98	90
CORN,			Early Mastadon, Honor, 1089	98	90
Ensilage, Eureka	99	90	Golden Ensilage, Honor, 1077	98	92
Ensilage, Eureka	99	90	Gold Dollar, Honor, 1062	98	90
			Golden Nugget, Honor, 1137A	98	90
			Golden Nugget, Honor, 1066A	98	90**
			Improved Leaming, Honor, 5898	98	90
			Improved Leaming, 1090	98	90*

¹ No guaranty on packages; purveyor claims to have furnished it; tested 99.9 purity, 40 + 13 hard seed germination, being very low in viability.

I. BRANDS SUBSTANTIALLY COMPLYING WITH GUARANTIES—Continued

Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination
STANFORD SEED CO., INC., Buffalo, N. Y. (concluded)		
CORN,		
Improved Pride of the North, Honor 5883	98	90
King Philip, Honor, 5851	98	85
Lancaster Sure Crop, Honor, 5798	98	90
Longfellow Flint, Honor, 1073	98	93*
Luce's Favorite, Honor, 5908	98	90
Sanford Flint, Honor, 2147	98	85**
Sanford Flint, 2252	98	85**
West Branch Sweepstakes, 1063	98	90
Yellow Sweepstakes, Honor, 1091	98	90
KENTUCKY BLUEGRASS,		
1857	91.55	85
MEADOW GRASS (Rough Stalked),		
1317	95.05	86
MILLET,		
Hungarian, 5675	99.13	91.5
Hungarian, 5675	99.13	91.5
Hungarian, 5679	98.95	91
Hungarian, 5679	98.95	91
Japanese, 1045	97.88	93
Japanese, 5548	98	88
Japanese, 5750	98.8	94
Japanese, 5750	98.8	94
Japanese, 5809	98.46	94
Japanese, 5809	98.46	94
OATS,		
5830	97	92
5889	98	92
PEAS,		
Canada Field, 5492	99	94
Canada Field, 5492	99	94
RAPE,		
5135	99.6	92.5
REDTOP,		
Fancy, 5709	90.35	92
Fancy, 5709	90.35	92
Fancy, 2180	90.65	90
Honor, 4175	97.5	92.5
RYE,		
2305	97.18	94
RYE GRASS (Domestic),		
2027	99.23	93*
SOY BEANS,		
Manchu, 1994	98	82
SUDAN GRASS,		
1723	98.79	85
2162	98	85
TIMOTHY,		
Lark, 5847	99.09	92
Lark, 5848	98	88
Lark, 5474	98.75	90
Lark, 5474	98.75	90
Liberty, 1877	99.6	92
Liberty, 1942	99.66	93
Liberty, 1953	99.7	95
Liberty, 1981	99.6	92
Liberty, 1981	99.6	92
Liberty, 5705	99.64	93
Liberty, 5833	99.65	94
Liberty, 5784	99.65	95
Liberty, 5681	99.65	92
Liberty, 5699	99.7	95
VETCH,		
Spring, 5110	98.94	94.5
Winter, 1929	99.7	88.4
WHEAT,		
Spring, 5813	99.6	92
Spring, 5813	99.6	92

Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity Germination
JOHN B. VARICK CO., Manchester, N. H.		
CLOVER,		
Medium Red, Acc	99.68	82
N. WERTHEIMER & SONS, Ligonier, Ind.		
ALFALFA,		
Grimm Affidavit, V-100	99.5	85-11
CLOVER,		
Alsike, 627	97	90
Alsike, 627	97	90
Alsike, Fullwerth, 35103	99.3	90
Alsike, Fullwerth, 35103	99.3	90
Alsike, Fullwerth, 35104	98.7	87-6
Alsike, Fullwerth, 35110	98.85	90
Alsike, Fullwerth, 35110	98.85	90
Alsike, Fullwerth, 35111	97.15	90
Mammoth Red, Fullwerth, 35300	99.74	90
Medium Red, Fullwerth, 201	98.95	90
Medium Red, Fullwerth, 35200	99.4	90
Medium Red, Fullwerth, 35300	99.74	90
Medium Red, Fullwerth, 35301	99.26	90
Medium Red, Fullwerth, 35301	99.26	90
Medium Red, Fullwerth, 39790	99.27	90
Medium Red, Fullwerth, 39790	99.27	90
MILLET,		
Hungarian, Fullwerth, 35708	99.58	86
Hungarian, Fullwerth, 35708	99.58	86
Japanese, Fullwerth, 35705	98.92	91
Japanese, Fullwerth, 35705	98.92	91
Japanese, Fullwerth, 35706	98	93
Japanese Fullwerth, 35706	98	93
PEAS,		
Canada Field, Fullwerth, P.	99	90
Canada Field, Fullwerth, P.	99	90
REDTOP,		
Fullwerth, 35820	93.8	94
Fullwerth, 35823	92.63	94
SOY BEANS,		
Fullwerth, 5	99	90
TIMOTHY,		
Fullwerth, 35541	99.82	90
Fullwerth, 35541	99.82	90
Fullwerth, 35547	99.65	92
Fullwerth, 35548	99.65	92
Fullwerth, 35548	99.65	92
Fullwerth, 35550	99.65	92
Fullwerth, 35549	99.65	92
WHITNEY-ECKSTEIN SEED Co., Buffalo, N. Y.		
ALFALFA,		
Affidavit Grimm, Glacier, 2108	99.5	84-6
Affidavit Grimm, Glacier, 2108	99.5	84-6
Affidavit Grimm, 2115	99.53	80-10
North Western Pan-American, 2102	99.51	90
BARLEY,		
6-row Selected, Pan-American, 8033	99	90
6-row Selected, Pan-American, 8033	99	90
6-row Selected, Pan-American	98.39	92
6-row Oderbrucker	98	90
BUCKWHEAT,		
Japanese	99	90
Japanese, 8032	99	90
CLOVER,		
Alsike, Imperator, 1855	97	79-14
Alsike, Imperator, 1855	97	79-14
Alsike, Pan-American, 1854	98.3	73-17
Alsike, Pan-American, 1864	98	80-10
Alsike, Pan-American, 1864	98	80-10
Alsike, Pan-American, 1867	97.25	85-7
Alsike, Pan-American	98.3	80

* Guaranty missing; tested 99, 97.

I. BRANDS SUBSTANTIALLY COMPLYING WITH GUARANTIES—*Concluded*

Seed, brand name and numerical designation	Guaranties		Seed, brand name and numerical designation	Guaranties	
	WHOLESALE DEALER	Purity		WHOLESALE DEALER	Purity
WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y. (<i>concluded</i>)			WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y. (<i>concluded</i>)		
CLOVER			REDTOP,		
Mammoth Red, Domestic, 5618.	99.25	90	Pan-American, 4210	94	88
Medium Red, Imperator	97.97	86.4	Pan-American, 4213	92.27	90
Medium Red, Imperator	97.97	86.4	Pan-American, 4213	92.27	90
Medium Red, Imperator	97.97	86.4	Unhulled	55	80
Medium Red, Pan-American, 5554	99.15	80-10	RYE,		
Medium Red, Pan-American, 5576	99.15	90	Spring, 3095	98.43	90
Medium Red, Pan-American, 5584	99.15	86.5-5	Spring, 3095	98.43	90
Medium Red, Pan-American, 5584	99.15	86.5-5	RYE GRASS,		
Medium Red, Pan-American, 5599	99	88.5-5	4802	99.46	90
Medium Red, Choice, 5623	98	85.5	SOY BEANS,		
White Blossom Sweet	99.36	82.6	Illini	98	90
White, Fancy, Pan-American, 6013	99	80-10	Illini	98	90
White, 6014	98.5	73-17	Manchu	98	90
White, 6015	98.5	75-15	Manchu	98	90
CORN.			Manchu	98	90
Golden Nugget	98	90	Manchu	98	92
Improved Leaming	98	90	Wilson	98	90
Improved Leaming	98	90	Wilson	98	90
Minnesota 13	98	90	SUDAN GRASS,		
Minnesota 13	98	90	9500	98.29	90
Sanford	98	80	9500	98.29	90
West Branch Sweepstakes, Pan-American	98	90	9702	98.96	90
West Branch Sweepstakes	98	90	9702	98.96	90
Yellow Sweepstakes	98	90	TIMOTHY,		
FESCUE,			Frontier, 986	98	90
New Zealand Chewings, 2505.	98	89**	Herald	98	90
KENTUCKY BLUEGRASS,			Imperator, 974	99.25	92
Fancy, 3609	88.7	85*	Imperator, 974	99.25	92
MILLET,			Pan-American	99.6	92
Hungarian, 9013	99	87	Pan-American	99.6	92
Hungarian	99	87	Pan-American	99.6	92
Hungarian	98.5	86	VETCH,		
Hungarian	98.5	86	Hairy	98.46	90
Japanese	98.06	90	Spring, 3684	99.7	90
Japanese	98.06	90	Spring	99.07	90
Japanese	98.06	90	Winter, 9405	99.58	78-13
Japanese	98.06	90	Winter, 9405	99.58	78-13
PEAS.			WHEAT,		
Canada Field, Fancy	98	90	Marquis Spring, Pan-American	98	94
Canada Field, Fancy	98	90	Marquis Spring, Pan-American	98	94
Canada Field, Fancy	98	90	Marquis Spring, Pan-American, 8026	99.3	90
Canada Field, Fancy	98	85	Marquis Spring, Pan-American, 8026	99.3	90
REDTOP,			Pan-American	98	90
Imperator, 2817	90	88	F. H. WOODRUFF & SONS, Milford, Conn.		
Imperator, 4212	90	90	CLOVER,		
Imperator, 4212	90	90	White, 5671	98.9	72-26
Pan-American, 4205	92.6	88	S. D. WOODRUFF & SONS, Orange, Conn.		
Pan-American, 4210	94	88	CORN		
			Woodruff's Select Beauty	99	94*

II. TIMOTHY AND ALSIKE MIXTURES SUBSTANTIALLY COMPLYING WITH GUARANTIES

Brand name and numerical designation	Purity guarantees			Germination guarantees		
	WHOLESALE DEALER	Timothy	Alsike	Total	Timothy	Alsike
ALLIED SEED CO., Philadelphia, Pa.						
Blue Ribbon, B-951		76.8	20.4	97.2	90	80-10
CRAVER-DICKINSON SEED CO., INC., Buffalo, N. Y.						
66-879		70.44	23.68	94.12	90	85
66-893		74.87	22.2	97.07	92	78-14
A. DICKINSON Co., Chicago, Ill.						
Beautiful, 69581		77	21	98	93	
69624		79	20	99	92	
69626		79	20	99	93	80-11
EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.						
-----		98.8	90	87-3
-----		98.8	90	87-3
SOURCE UNKNOWN*						
TA-68150		75	20	95	?†	?†

* Source of the lot represented by this sample could not be determined. It was guaranteed as to purity and was as good in this respect as it was said to be. It was not guaranteed as to germination but the results of the test were fairly satisfactory, †93, †88. This lot was sold contrary to law, but the farmers who bought it got fairly good seed.

III. COMPLEX MIXTURES WHICH ESSENTIALLY COMPLY WITH GUARANTIES

Brand names	Purity						Germination					
	Red clover	Alsike clover	Timothy	Redtop	Alfalfa	Total	Red clover	Alsike clover	Timothy	Redtop	Alfalfa	Total
EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.												
Hayland No. 1.	Guaranty	99.2	98.75	99.5	..	..	99	78-16	79-11	90	..	85-5
	Proportions	32	20	48	..	..	..	..	..	..	..	..
	Found	29	22	48	..	..	99	92-2	88-6	93	..	92-2
	Found	12	27	60	..	..	99	96-1	82-14	96	..	92-5
Hayland No. 2.	Guaranty	99.2	96.8	99.5	95	..	98.25	78-16	71-19	90	90	83-7
	Proportions	24	16	40	20	..	..	..	..	..	..	..
	Found	25	10	39	23	..	97	84-6	88-7	95	94	91-2
	Found	9	18	39.5	31	..	97.5	96	86-7	95	95	94-1
Hayland No. 3.	Guaranty†	..	..	..	..	..	98.75	..	..	..	..	82-8
	Proportions	24	12	40	8	16	..	..	..	..	..	..
	Found	18	12	45	11	13	99	90-6	82-16	96	94	92-4
	Found	13	11	51.5	14	9	98.5	86-14	78-20	98	95	70-18
Hayland No. 4.	Guaranty†	..	..	..	..	..	99.2	..	..	..	..	73-17
	Proportions	12	8	20	..	60	..	..	..	..	..	..
	Found	12	7	24.5	..	55	98.5	92	80-4	95	..	72-24
Pasture, medium soil	Guaranty†	..	..	..	..	..	95.5	..	..	..	..	81-8
	Proportions	24	20	16	8	..	..	..	..	..	..	..
	Found	18	17	17	7	*	97	98	83-7	96	95	89-1
Pasture, heavy soil	Guaranty†	..	..	..	..	..	95.5	..	..	..	..	80-8
	Proportions	16	24	16	16	..	..	..	..	..	..	..
	Found	9	22	16	17	†	96	92-6	82-12	95	95	88-3

* Also purity Poa 35, white clover 3; germination Poa 85, white clover (amount too small to test).

† Also purity Poa 28, white clover 4; germination Poa 83, white clover 80-11.

‡ One sample of No. 2 and No. 4 very slightly low in purity.

§ The purity and germination guaranties pertaining to the individual constituents were not reported by the sampling agents and could not be secured from the parties from whom the samples were drawn. The guaranty statements of these mixtures are extremely complicated. Presumably they ranged from 99.5 to 98.5 purity (except Kentucky bluegrass, probably 89) and in viability from 97 to 95 in clovers and redtop, from 92 to 91 in alfalfa, 87 in timothy and 80 in Kentucky bluegrass.

Note.—The two pasture mixtures were guaranteed to contain, respectively of Ladino clover and Kentucky bluegrass 4 and 28, and 4 and 24 pounds in 100 pounds, the former with purity guaranty of 99+, the latter of 89.

The sampling of such complex mixtures is not an easy job. The various seeds tend to separate in the bag, the heavier settling towards its bottom and sides. There seems every reason to believe that each bag as shipped contained the proportions of the several seeds indicated on its tag. Yet, on the other hand, the Station analyses accurately set forth the composition of the samples submitted by the sampling agents. Buyers will do well to look at total purity and total germination results rather than at the details.

Table IV lists those brands of agricultural seed (other than mixtures) which, as judged by the samples drawn from dealers' stocks and analyzed by the Station, *have failed to fulfill the germination guaranties* made for them by their vendors. They met purity guaranties in each case. The table shows vendors' names and addresses, brand names and numerical designations, as well as nature of seed, purity and germination guaranties and germination percentages found.

IV. BRANDS OF SINGLE SEED FAILING TO COMPLY WITH GERMINATION GUARANTIES. (PURITY GUARANTIES MAINTAINED)

	Purity	Germination	
		Guaranty	Found
ARTHUR R. CONE, Buffalo, N. Y.			
Alfalfa, Grimm Affidavit Arco, 28-62	99.8	OK	82-12 71-24
Grimm Affidavit Arco, 28-62	99.8	OK	82-12 72-25
Corn, Cornell 11, 80-206	98	OK	90 75
Smoky Dent, Arco, 80-182	98	OK	88 80
CRAVER-DICKINSON SEED CO., INC., Buffalo, N. Y.			
Corn, Improved Leaming, 72-369	99	OK	88 80
Pride of the North, 72-36	99.5	OK	98 90
STANFORD SEED CO., INC., Buffalo, N. Y.			
Corn, Early August, Honor, 1130	98	OK	85 75
WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.			
Corn, Excelsior Ensilage	98	OK	90 80
Golden Nugget, Pan-American	98	OK	90 70
Smoky Dent Selected, Pan-American	98	OK	90 63
Kentucky Bluegrass, Fancy	85	OK	85 70

Tables V and VI (page 14) list the mixtures which have *failed to fulfill the guaranties made for them* by their vendors.

These mixtures are faulty in purity but not in viability except that Cone No. 10-108 (second sample) contains too many hard seed. It seems odd that whereas not a single seed failed to meet purity guaranties, nearly half the mixtures fell short. The Craver-Dickinson and one Whitney-Eckstein sample contained but about two-thirds the alsike they were guarantied to carry and the Stanford seed sample less than one-third the guaranted amount. (See statements above and below as to difficulty encountered in sampling mixtures.)

V. TIMOTHY AND ALSIKE MIXTURES FAILING SUBSTANTIALLY TO COMPLY WITH GUARANTIES

Brand name and numerical designation	WHOLESALE DEALER	Purity guaranties			Germination guaranties	
		Timothy	Alsike	Total	Timothy	Alsike
ARTHUR R. CONE, Buffalo, N. Y.						
Arco, 10-105	Guaranteed	73.05	24.05	97.1	98	66-21
	Found	62.5	31	93.5	96	80-13
10-108	Guaranteed	78.76	20.44	99.2	90	84-6
	Found	82	16	98	95	80-11
10-108	Guaranteed	78.76	20.44	99.2	90	84-6
	Found	74.5	22	96.7	92	72-20
CRAVER-DICKINSON SEED Co., INC., Buffalo, N. Y.						
Pine Tree, 66-893	Guaranteed	74.87	22.20	97.07	92	78-14
	Found	80	15.5	95.5	97	85-4
STANFORD SEED Co., INC., Buffalo, N. Y.						
9855	Guaranteed	77.28	20.16	97.44	91	80-10
	Found	91	6.25	97.25	95	83-7
WHITNEY-ECKSTEIN SEED Co., Buffalo, N. Y.						
4561	Guaranteed	77.01	20.11	97.12	90	73-13
	Found	62	33	95	95	83-10
4561	Guaranteed	77.01	20.11	97.12	90	73-13
	Found	82.5	12.5	95	93	76-14

The total purity guaranties and analyses in many of the mixtures agree closely, even though the percentages of the several ingredients actually found to be present may not have checked closely with the guaranties. Mixtures are difficult to sample because mechanical separation may and often does take place within the bag. The quality of the seed used in these mixtures seems to be excellent.

TABLE VI. ALSIKE AND WHITE CLOVER

	Purity			Germination		
	Alsike	White	Total	Alsike	White	Total
HOLBROOK GROCERY Co., Keene, N. H.						
Guaranteed	87.34	11.86	99.2	.....	.....	75
Found	85.25	13.5	98.75	78-16	44-52	OK
Found	82.75	15.5	98.25	86-10	51-43	OK
Found	83	15	98	64-19	44-40	..

These goods tend to run slightly low in purity. The viability of the first two lots is satisfactory, of the third much less so—60 percent sprouts, 22 percent hard seed.

Alfalfa, clover and vetch seed contain more or less hard seed. If to the percentage of germination of the samples as found and reported is added in each case the percentage of hard seed, the combined result is apt to be nearly or quite equivalent to the guaranty made by the purveyor. This statement holds even though the proportions of germination and of hard seed in guaranty and analysis may vary. In some cases, the difference in analysis and guaranty may be ascribed to the lapse of time between the date of the test made by the purveyor and the test made by the station's seed analyst. Hard seed are a nuisance to both

vendor and seed analyst. Just how results should be reported is still a moot question. Most vendors selling in Vermont state the number of hard seed present in the goods they sell and all ought to do so.

SUMMARY OF 1936 INSPECTION

The violations of the law are usually due:

1. *To failure to declare guaranties.*—It seems safe to say that the original container almost always carries a guaranty, but sometimes, perhaps often, the figures are not furnished as required by law when smaller lots are drawn from the original package and sold to the farmer. A very few lots are sampled every year whereon no guaranties whatsoever appear. Local dealers sometimes lose or mislay or destroy the tags furnished by the original vendors, sometimes they are torn off in transit, and, rarely, the vendor neglects to furnish the tags.

2. *To failure to maintain purity guaranty.*—This rarely occurs. Only 11 samples in 590 were below guaranty in purity.

3. *To failure to maintain germination guaranty.*—This lapse is usually more common than is failure to maintain a purity guaranty. Tables IV to VI list 13 samples.

Marked improvement has occurred in correct labeling during the last few years.

Alfalfa and red clover and the several cereals were found to be quite free from weed seed, but alsike clover less so. No traces of dodder were found. The situation seemed normal in respect to weed seed content of agricultural seed sold in Vermont in 1936. When weed seeds or inert matter in more than the usual amounts are present, vendors are apt to lower their guaranties to meet this situation. Much has been accomplished during recent years by seed legislation, inspection and the use of improved seed cleansing facilities. Good, clean, viable seed may be readily bought all over Vermont; yet relatively poor and weedy seed is sometimes sold. Buyers should see to it that dealers furnish them the information the law specifies should be furnished as to the quality of the seed which is offered for sale. It is almost always exhibited on the original seed bag and should be placed on every lot of more than 10 pounds which is bought. If it is furnished a prospective buyer may then readily discriminate between seed of high and low quality.

Section 7874 of the Public Laws requires, in case agricultural seed contains certain weed seeds, that their names and approximate number per ounce must be stated. In this respect the law resembles that in most other states where seed laws obtain.

CONCERNING ALFALFA AND CLOVER SEED OF FOREIGN ORIGIN

A recent press release of the Federal Department of Agriculture reads in part as follows:

"Farmers who may plan to buy imported alfalfa and red clover seed are reminded . . . of the limited adaptability of seed of these crops from foreign countries. Importation of these seeds is foreseen because drought and a small carryover have resulted in an expected shortage of domestic seed. Because of hot, dry weather seed failed to set properly and yields are unusually small. Some farmers also have been forced to use fields of red clover, alfalfa, and other legumes and grasses for feed, rather than letting them go to seed.

"Some (foreign) seeds are adapted in varying degrees in certain regions and useless in other places in this country. . . . The only imported red clover seed adapted for use in (Vermont) is that from Canada, which does fairly well.

"Susceptibility of (other) foreign red clovers to diseases, insect pests and winter killing in the United States are the main reasons why (they are) inferior to domestic or home grown seed. When compared to domestic seed the yields of foreign red clover have ranged from complete failures of stands in the harvest year to three-fourths of a crop.

"All imported red clover seed of unknown origin and all imported from Italy (is) stained 10 percent red; all from Canada one percent violet; and all other imported red clover seed of known origin one percent green. If domestic red clover seed is not available farmers are advised to consider using other legumes.

Alfalfa seed is being imported largely from Turkistan, Italy, the Argentine and South Africa. Turkistan seed "has not given good results in the East, partly because of its susceptibility to leaf diseases and partly because of its tendency to become dormant early in the fall, thus permitting weeds to invade the field and gradually crowd out the alfalfa. Both of these characteristics contribute to the short survival of Turkistan fields under humid conditions. . . . Some lots (of Italian origin have proven) fairly resistant to cold while others have been very susceptible to low temperatures. Farmers in the northern half of the United States should avoid using alfalfa seed of Italian origin.

"Argentine alfalfa has been tested in 25 states. In 15 of these the results were wholly unfavorable due to winter-killing. Seed from Africa . . . has given poor results except in the southeastern states.

"All imported alfalfa seed of unknown origin and that from Africa (is) stained 10 percent red, all from Canada one percent violet, all from Turkistan 10 percent purple-red, all from South America 10 percent orange-red and all other of known origin one percent green."