



OFFICE OF INDIANA  
STATE CHEMIST & SEED  
COMMISSIONER  
ANNUAL SEED  
REGULATORY REPORT

**2017**

Robert D. Waltz, Ph.D. - State Chemist & Seed Commissioner  
Donald B. Robison, MBA - Seed Administrator

**2017  
Indiana Seed Regulatory Program  
Annual Report**



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## Indiana Seed Control 2017 Annual Report

Presented here within is the 2017 annual report of the Office of Indiana State Seed Commissioner. It represents a summary of official inspectional activities related to seed control in Indiana, as well as laboratory analyses performed on official samples collected under the authority of Indiana Seed Law for agricultural and vegetable seeds distributed in Indiana.



The activities of our seed regulatory program revolve around our mission statement:

***“Provide education and service to consumers of seed and the seed industry and assure a quality product is available in the marketplace and truthfully represented.”***

The Indiana Seed Law is a “truth-in-labeling” law requiring basic quality factors to be expressed to represent a level of quality to potential purchasers and consumers. The purpose of the law is to provide the consumers with adequate information, through fair and consistent labeling, to make intelligent purchases of agricultural and vegetable seed products.

The inspection staff of the Indiana State Chemist and Seed Commissioner provides marketplace surveillance throughout the state through inspectional visits to all retail sales outlets offering seed products for sale. These products routinely consist of various agricultural crop seeds, forage seeds, lawn and turf seeds, and vegetable seed kinds. Samples are obtained through official sampling methods and are analyzed in the Indiana State Seed Laboratory to determine compliance with labeled guarantees.

Our office is a charter member of the Association of American Seed Control Officials (AASCO) and the Association of Official Seed Analysts (AOSA) and we abide by the rules and protocols established by those associations. This report accurately reflects the dedication to our statutory responsibilities to enforce the Indiana Seed Law and provide consumer protection to Indiana farmers, consumers and seedsmen.

Prepared and Submitted By:

A handwritten signature in black ink, appearing to read 'Donald B. Robison', written over a light blue horizontal line.

Donald B Robison, MBA  
Seed Administrator



# ENFORCEMENT ACTIONS ...

***Providing education, service and protection to Indiana consumers and industry to assure quality seed products of the highest integrity are truthfully represented and available in the marketplace***

- **OUR PURPOSE**

The Indiana Seed Law (IC 15-15-1) is administered by the Office of Indiana State Chemist & Seed Commissioner. The purpose of the law is twofold: First, to give the purchaser sufficient information to enable them to buy good seed, and second, to protect the honest and reliable seedsman and the farmer from unscrupulous dealers. Our field, laboratory and office staffs strive to carry out our mission in administration and enforcement of the Act.

- **ENFORCEMENT ACTION TAKEN IN 2017**

Enforcement action initiated in 2017 was dictated by the seriousness of the violations found as a result of either laboratory analysis or inspectional observations discovered during facility inspections.

Official Samples Tested in 2017:	1,490	
Official Samples Correctly Labeled:	1,320	(88.6%)
Samples Incorrectly Labeled:	170	(11.4%)
Samples Voided and/or Cancelled:	0	
Total Tests Completed on Samples:	5,438	

Breakdown of 2017 Violations:

Minor Violations Based on Product Analysis: (Relabeling Orders):	67	(39.4%)
Serious Violations Based on Product Analysis: (Stop Sale Orders):	81	(47.6%)
Technical Violations Based on Product Analysis:	22	(13.0%)

Inspector-Issued Stop Sale Orders (Number of Seed Lot's Involved): 114

Laboratory analysis done to verify label claims of "mechanical purity" (included Pure Seed %, other crop seed %, inert matter %, weed seed %, noxious weed seed), seed count, and "viability" (germination, hard seed and dormancy). Additional claims evaluated included genetic trait verification for glyphosate tolerance (by lateral flow immunoassay) and BT traits including Cry1Ab, Cry3Bb, and Cry34, MCry3A, and Cry1F (utilizing lateral flow immunoassay test kits).

*\* Relabeling orders issued against seed lots classified as "minor" violations as a result of laboratory analysis*

*\*\* Stop sale action taken against seed lots classified as "serious" violations as a result of laboratory analysis*

- **USDA FEDERAL SEED ACT ENFORCEMENT**

Samples were collected and shipped to USDA, Gastonia NC for Trueness to Variety Testing (TTV). Eight lots of vegetable seed were involved in this TTV testing and all varieties were found to be correctly packaged and labeled.

Sixty-eight samples were sent to the Federal Lab for apparent violations of the Federal Seed Act. Eighty-nine percent were found to be Federal Violations with a warning letter sent.

In three cases, seed in Kentucky 31 Tall Fescue bags was found to be incorrectly labeled and actually not Kentucky 31 Tall Fescue. This is a federal focus and OISC – Seed Section is participating by shipping samples of seed to the Federal Seed Lab.

## OUR PRESENCE IN INDIANA ...

The Indiana Seed Commissioner was established in 1921 with the passage of House Bill No. 99 which was signed into law on February 24, 1921 to create the Indiana Seed Law, a “truth-in-labeling” law.



Seed testing facilities were established at Purdue University following passage of that first law to provide support to enforcement activities conducted under the authority of the law. Testing services were also provided for residents and consumers of the state to assess seed quality on seed purchased and grown by farmers.



*State Seed Laboratory, Today*

The Office of Indiana State Chemist and Seed Commissioner (OISC) is located on the campus of Purdue University and housed in the Biochemistry Building in the College of Agriculture. This proximity to faculty, researchers and extension staff in the various agricultural sciences is beneficial in providing information on new technologies constantly emerging in the regulated industries OISC comes in contact with.



*Biochemistry Building  
175 S. University Street, Purdue University  
West Lafayette, IN 47907*

# THE INDIANA SEED INDUSTRY

## Indiana Seed Permit\* holders number 349

(Both in-state and out-of-state distributors)

(\* distributors marketing seed under their private label)

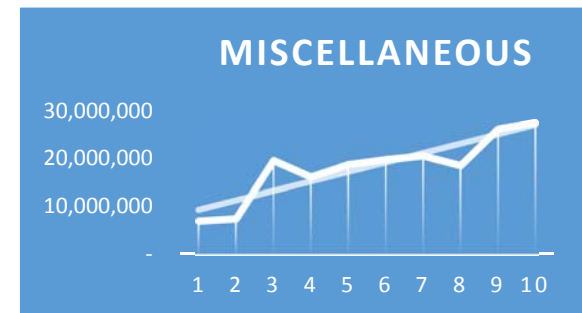
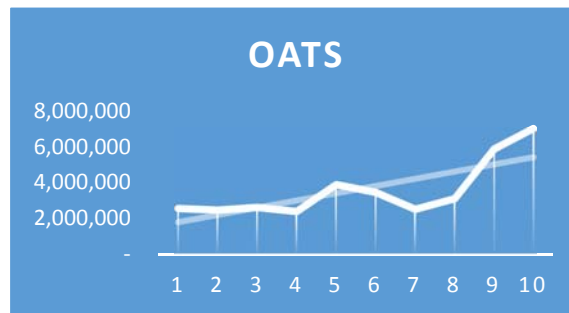
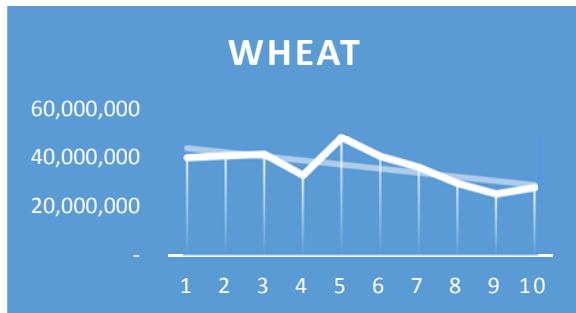
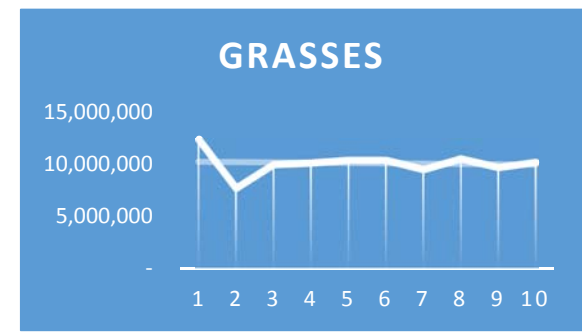
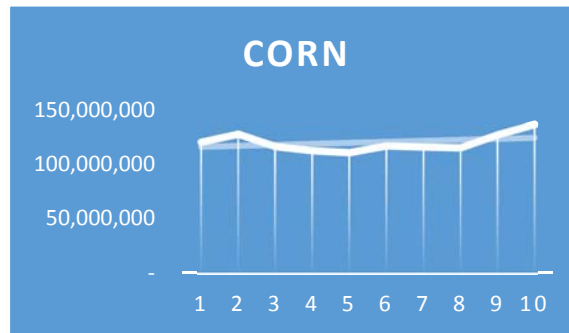
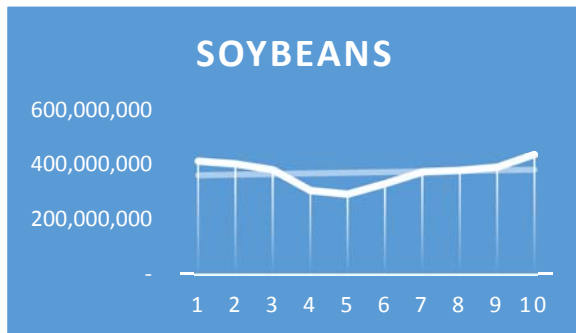
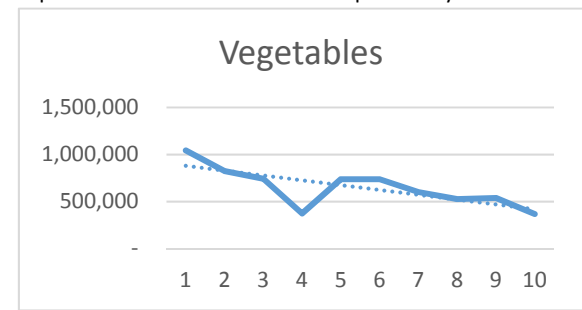
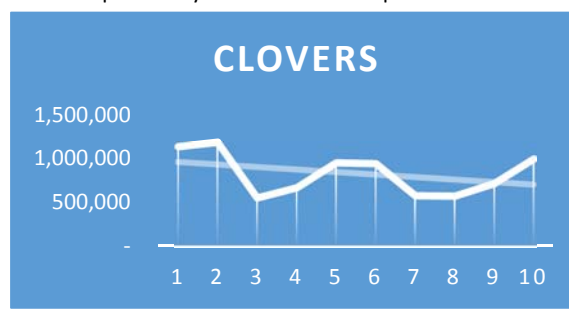
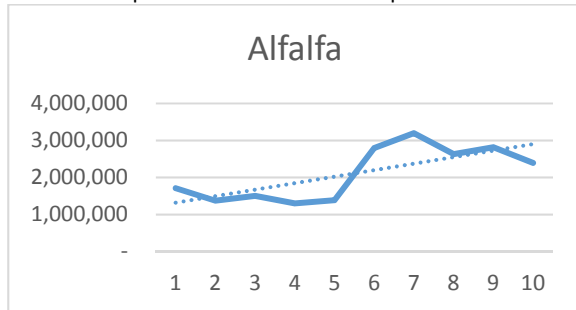
### SEED DISTRIBUTION IN INDIANA

The table on the next page illustrates a breakdown of reported pounds of agricultural and vegetable seeds distributed in Indiana during the calendar years of 2008 to 2017. These figures and categories reported represent those specified on the quarterly reports submitted from all permit holders licensed to do business in Indiana, as required by the Indiana Seed Law.

The law requires all distributors who cause seed to be distributed in the state to report total sales made. Inspection fees are assessed based on the kind and amount of seed sold. Current fees assessed on total distribution are 30 cents/100 pounds sold for alfalfas, clovers, grasses and vegetables, and 15 cents/100 pounds sold for all other seeds.

Seed	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Alfalfa	1,710,300	1,373,000	1,503,000	1,299,500	1,385,900	2,796,000	3,197,650	2,632,000	2,818,360	2,393,880
Clovers	1,137,100	1,187,300	556,200	671,100	954,400	946,100	582,000	575,400	718,504	997,884
Vegetables	1,043,000	824,000	741,700	373,100	737,500	737,500	601,000	526,400	538,153	367,637
Grasses	12,362,700	7,685,000	9,937,500	10,095,000	10,353,400	10,353,400	9,468,000	10,503,000	9,664,594	10,164,299
Corn	120,663,000	127,947,500	116,644,100	112,816,900	111,039,000	117,270,700	116,224,000	115,441,800	127,427,645	136,766,089
Soybeans	411,191,700	401,144,500	379,302,100	304,384,800	291,915,700	329,752,700	372,345,700	377,653,900	389,585,289	435,986,679
Wheat	39,916,200	40,705,000	41,342,800	32,746,100	48,204,100	40,468,300	36,009,100	29,464,400	25,164,329	27,771,000
Oats	2,570,300	2,479,000	2,632,600	2,400,700	3,893,300	3,459,800	2,529,800	3,112,300	5,858,697	7,010,392
Miscellaneous	7,128,800	7,598,000	19,610,000	16,206,000	18,781,100	19,820,900	20,583,500	18,594,500	26,173,506	27,522,255

\*White Charts represent decreases in seed pounds sold in Indiana from the previous year. Blue Charts represent increases in seed pounds sold in Indiana from the previous year.



## PROFESSIONAL AFFILIATIONS ...

The Office of the Indiana Seed Commissioner maintains membership in national seed organizations and associations and agreements with federal agencies.

**AASCO (Association of American Seed Control Officials)** The Seed Commissioner's office participates as an active member of AASCO. The Association of American Seed Control Officials is an organization of seed regulatory officials from the United States and Canada. The Association was organized in 1949, from an outgrowth of regional meetings held in various parts of the United States. The members meet annually to discuss mutual concerns of seed law enforcement, to be updated on new developments in the seed industry, and to update the Recommended Uniform State Seed Law (RUSSEL) which the organization developed and maintains as a "model" law for states and federal programs.

**AOSA (Association of Official Seed Analysts, Inc.)** The State Seed Laboratory is a member of the Association of Official Seed Analysts, Inc., (AOSA) a national body responsible for development of uniform testing rules utilized in the U.S. and Canada and recognized internationally. AOSA was formed in 1908 in response to initial attempts by individual states to develop seed laws. This was the beginning of regulated seed commerce in the United States. Initial priorities included, as was defined in the constitution, an attempt to seek uniformity and accuracy in methods, results, and reports. It set as its objective an effort to perfect and make publicly known, through publication, uniform rules for seed testing. Primary functions include:

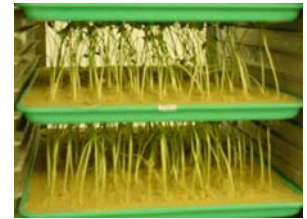
- Establish the AOSA Rules for Testing Seeds which are generally adopted by most states as the rules for testing seeds in their respective states
- Contribute to the refinement and modification of the rules and procedures for seed testing
- Ensure that testing procedures are standardized between analysts and between laboratories
- Influence and assist in enforcement of appropriate seed legislation at state and federal levels

**USDA Seed Regulatory & Testing Branch** - The Indiana Seed Commissioner's Office maintains Cooperative Agreement #12-25-A-3330 with the USDA Seed Regulatory and Testing Branch for mutual assistance and cooperation in regulatory matters pertaining to seed shipped into the state from out-of-state vendors. The federal agency authorizes the State Seed Commissioner to sample seed and inspect records pertaining to seed shipments made into Indiana subject to the Federal Seed Act. The Federal Seed Act, by virtue of its basic similarity to the Indiana Seed Law, supplements the State Law.



## ANALYSIS & TESTING METHODS

The Indiana State Seed Laboratory is an active member of the Association of Official Seed Analysts (AOSA) and the methods used for sample preparation and analysis are those approved by the Association. Under such “Rules for Testing Seeds” a standard analysis has been developed in conjunction with the enforcement of labeling laws that furnishes information as to the composition of the seed sample and the ability of the seed to produce plants. The rules, which are routinely followed, summarize and make available the accumulated experience of seed analysts.



The laboratory also offers a service testing program available to the general public. Individuals and/or companies requesting analysis information may submit samples to the laboratory for testing and specify the type of test or tests desired (purity, germination, noxious weed seed exam). Testing fees are \$6 per sample for individual purity, germination and/or identification tests, and \$10 per sample for complete tests (purity, germination, noxious weed exam). Detailed reports of analysis are furnished to the sender at the completion of the testing.

The laboratory also offers immunoassay strip testing for traits in soybeans, corn and alfalfa. This testing is first level testing and can show the presence or absence of these traits. It is accurate to within roughly five percent. If a more detailed test is required we partner with a lab that conducts PCR DNA testing and can quote those tests.

## OUR PEOPLE...

### Jodi Small - Certified Seed Analyst



Jodi was hired in March 2005 as an analyst to specialize in germination testing for the laboratory. In her present role her main focus is viability testing, conducting warm germination tests on both agricultural and vegetable crop kinds. Jodi obtained her accreditation from AOSA as a Certified Seed Analyst in germination testing in April 2011. Jodi has a Masters of Education from Indiana State University.

### Teresa Thompson - Laboratory Technician VII



Teresa began her Purdue career in 2004 working in the Department of Horticulture as a lab technician. She was hired by the Seed Laboratory in January 2011 as a secretary to the Seed Laboratory and Seed Administrator. In her role she is responsible for data entry of sample information and service seed reports. Teresa has a BS in Agriculture from Purdue University. She assists with visitors, those who send in samples or phone in with questions. She also is trained to help with germination testing and supervising student workers.

### Jessica McVay - Laboratory Coordinator/Feed Microscopist/Registered Seed Technologist



Jessica was hired in August 2012 in the laboratory as a Seed Analyst/Feed Microscopist. She holds a BS in Interdisciplinary Biology with a minor in Forensic Science and Sociology from Purdue University. Her Role in the laboratory is to help direct the lab staff in both purity and germination and provide microscopic analysis on animal feed and bird feed products. Her new role of Laboratory Coordinator in June 2016 has her providing leadership to the lab staff and helping direct the workflow.

### Emily Morrison - Certified Seed Analyst



Emily was hired January 2016 as a Seed Analyst. Her primary role in the lab is to perform physical purity and germination. In 2016, Emily obtained certification in germination testing through AOSA and is continuing her education to pursue certification in physical purity. Before starting in the seed lab she has had previous experience in seed quality testing with Dow AgroScience. She graduated from Purdue University with a BS in Natural Resources and Environmental Science.

### Scottie Brittsan - Laboratory Technician VI



Scottie was hired in June of 2017 as a Seed Analyst. Her primary role in the lab is to work with official samples in both data entry, sample entry and official seed reports. Scottie is continuing her education for germination and training with physical purity. She holds a BS in Entomology and Minors in Plant Sciences and History from Purdue University. Before starting in the seed lab she worked in the Purdue Nematode Lab and for the USDA as a Biological Science Aid performing Northern Uniform Soybean Tests.

## **DETAILED ANNUAL REPORT ON FOLLOWING PAGES...**

**Table 1.**

Classification of samples by kind and numbers of tests involved.

<b>Number of Samples</b>	<b>Kinds</b>	<b>Purity</b>	<b>Noxious Weed Examinations</b>	<b>Germinations*</b>
190	Vegetable	5	3	210
2,195	Agricultural	1,349	1,296	2,220
20	Flower	0	0	23
0	Tree	0	0	0
31	Feed	0	0	31
0	Health Food	0	0	0
2	Pasture Mix	1	1	1
0	Flower Mix	0	0	0
0	Vegetable Mix	0	0	0
0	Conservation Mix	0	0	0
0	Vegetable Kit	0	0	0
45	Lawn Mix	50	43	41
4	Unidentified	0	0	0
<b>2,487</b>	<b>Totals</b>	<b>1,405</b>	<b>1,343</b>	<b>2,526</b>

<b>Other Tests</b>	
Interstate Noxious Weed Test	0
Treated Germination Test	0
Cold Test	0
Sand Test	10
Roundup® Ready Test	0
Tetrazolium Test	0
Endophyte Test	0
Ryegrass Fluorescence Test	0
Oats Fluorescence Test	7
Identification Test	0
Miscellaneous Test	0
400 Seed Count Test	120
Canada Noxious Weed Test	0
Mechanical Seed Count Test	27
<b>Total Tests</b>	<b>5,438</b>

\*Includes preliminary and final seedling counts.

## SEED ACT ENFORCEMENT

In the enforcement of the Seed Act, Plant Industry Inspectors visit wholesale and retail firms to inspect seed labeling and obtain samples for testing. The inspectors collected 1,374 seed samples. A total of 116 or 8.44% of these samples were found to be in violation of the Act. The inspectors also placed 61 lots of seed (10,100 containers) under 'Stop Sale' at 47 locations. These 'Stop Sales' are released when the owner or custodian of the seed follows the recommended procedure to have it relabeled in compliance with the law or otherwise disposed.

The tables on the following pages summarize the Seed Act Activities.

Table II is a comparison of the percentage of all violations for the past three years for all classes of seeds.

Table III summaries the kinds of agriculture, vegetable and flower seeds tested with the number and percentage violation of each.

Table IV summarizes the inspection record of individual wholesale distributors giving total samples and number correctly labeled or in violation.

Table V represents a summary of crops, varieties and acres inspected by the seed certification program.

**Table II**

A comparison of violations of seed samples taken by seed inspectors.

Kinds	% Violations			
	Number of Samples *	01/01/2017-12/31/2017	01/01/2016-12/31/2016	01/01/2015-12/31/2015
Vegatable	139	10.79%	5.26%	0.00%
Agricultural	1,199	8.01%	3.40%	0.00%
Flower	0	0.00%	0.00%	0.00%
Tree	0	0.00%	0.00%	0.00%
Feed	0	0.00%	0.00%	0.00%
Health Food	0	0.00%	0.00%	0.00%
Pasture Mix	0	0.00%	33.33%	0.00%
Vegetable Mix	0	0.00%	0.00%	0.00%
Conservation Mix	0	0.00%	0.00%	0.00%
Vegetable Kit	0	0.00%	0.00%	0.00%
Lawn Mix	36	13.89%	12.90%	0.00%
<b>Totals</b>	<b>1,374</b>	<b>8.44%</b>	<b>4.51%</b>	<b>0.00%</b>

\* Samples collected by seed inspectors 1/1/2017 - 12/31/2017

**Explanation of abbreviations used in tables.**

- CL - Correctly Labeled.
- SV - Serious violation, discrepancy exceeds double the tolerance.
- MV - Minor violation, discrepancy exceeds regular tolerance.
- TV - Technical violation, label does not bear all required information.
- #VIOL - Number of violations.
- %VIOL - Percentage of violations.

**Table III.**

Total of each kind tested, number and percentage of violations.

Seed Kind Tested	Vegetable Seeds						
	Total	CL	SV	TV	MV	#VIOL	%VIOL
Arugula	1	1	0	0	0	0	0.00%
Bean, Garden	35	33	2	0	0	0	5.71%
Bean, Lima	3	2	1	0	0	0	33.33%
Bean, Red Kidney	1	1	0	0	0	0	0.00%
Beets	3	2	1	0	0	0	33.33%
Bluegrass, Kentucky	2	0	0	0	2	2	100.00%
Broccoli	4	4	0	0	0	0	0.00%
Brussels-Spours	1	1	0	0	0	0	0.00%
Cabbage	6	6	0	0	0	0	0.00%
Carrot	4	4	0	0	0	0	0.00%
Cauliflower	1	1	0	0	0	0	0.00%
Chives, Garlic	1	1	0	0	0	0	0.00%
Collards	2	2	0	0	0	0	0.00%
Corn, Sweet	10	9	1	0	0	0	10.00%
Endive	1	1	0	0	0	0	0.00%
Fescue, Creeping Red	1	0	0	0	1	1	100.00%
Fescue, Tall	2	0	0	0	2	2	100.00%
Kale	3	2	0	0	1	1	33.33%
Kohlrabi	1	1	0	0	0	0	0.00%
LARGE SEED VEGETABLE	1	1	0	0	0	0	0.00%
Leek	1	1	0	0	0	0	0.00%
Lettuce	18	16	2	0	0	0	11.11%
Mustard	3	3	0	0	0	0	0.00%
Mustard, Spinach	2	1	0	0	1	1	50.00%
Onion	4	3	1	0	0	0	25.00%
Orchardgrass	2	1	0	0	1	1	50.00%
Pakchoi	1	1	0	0	0	0	0.00%
Parsley	1	0	0	0	1	1	100.00%
Parsnip	1	0	1	0	0	0	100.00%
Pea, Garden	12	11	1	0	0	0	8.33%
Pepper	1	1	0	0	0	0	0.00%
Radish	6	6	0	0	0	0	0.00%
Ryegrass, Annual	1	0	0	0	1	1	100.00%
Ryegrass, Perennial	1	0	0	0	1	1	100.00%
SMALL SEED VEGETABLE	1	1	0	0	0	0	0.00%
Spinach	1	1	0	0	0	0	0.00%
Swiss Chard	1	1	0	0	0	0	0.00%
Timothy	1	0	0	0	1	1	100.00%
Tomato	2	2	0	0	0	0	0.00%
Turnip	1	1	0	0	0	0	0.00%
<b>Total</b>	<b>144</b>	<b>122</b>	<b>10</b>	<b>0</b>	<b>12</b>	<b>22</b>	<b>15.28%</b>

Seed Kind Tested	Agricultural Seeds						
	Total	CL	SV	TV	MV	#VIOL	%VIOL
Alfalfa	17	14	0	1	2	3	17.65%
Alkaligrass, Weeping	1	0	0	0	1	1	100.00%
Arugula	4	4	0	0	0	0	0.00%
Barley	1	1	0	0	0	0	0.00%
Bean, Garden	33	31	2	0	0	2	6.06%
Bean, Lima	1	0	0	0	1	1	100.00%
Bean, Red Kidney	1	1	0	0	0	0	0.00%
Beet, Sugar	1	1	0	0	0	0	0.00%
Beets	4	4	0	0	0	0	0.00%
Bluegrass, Kentucky	73	62	6	0	5	11	15.07%
Bok Choi	1	1	0	0	0	0	0.00%
Brassica	1	1	0	0	0	0	0.00%
Broccoli	3	3	0	0	0	0	0.00%
Brome, Meadow	2	1	1	0	0	1	50.00%
Brome, Mountain	1	0	1	0	0	1	100.00%
Brussels-Sprouts	1	1	0	0	0	0	0.00%
Buckwheat	1	1	0	0	0	0	0.00%
Cabbage	4	3	1	0	0	1	25.00%
Canola	1	1	0	0	0	0	0.00%
Carrot	9	7	0	0	2	2	22.22%
Cauliflower	1	1	0	0	0	0	0.00%
Celery	1	0	1	0	0	1	100.00%
Chicory	1	0	0	0	1	1	100.00%
Chufa	1	0	1	0	0	1	100.00%
Clover, Alsike	1	1	0	0	0	0	0.00%
Clover, Arrowleaf	1	0	0	0	1	1	100.00%
Clover, Balansa	1	1	0	0	0	0	0.00%
Clover, Crimson	12	9	1	1	1	3	25.00%
Clover, Ladino White	2	0	0	0	2	2	100.00%
Clover, Red	10	6	2	2	0	4	40.00%
Clover, White	5	2	1	1	1	3	60.00%
Collards	1	1	0	0	0	0	0.00%
Corn, Hybrid Field	160	159	1	0	0	1	0.63%
Corn, Refuge	5	5	0	0	0	0	0300%
Corn, Sweet	27	25	2	0	0	2	7.41%
Cowpea	1	1	0	0	0	0	0.00%
Cowpea, Yardlong	1	1	0	0	0	0	0.00%
Cucumber	5	4	1	0	0	1	20.00%
Fescue, Creeping Red	24	19	2	0	3	5	20.83%
Fescue, Hard	2	1	1	0	0	1	50.00%
Fescue, Meadow	4	2	0	0	2	2	50.00%
Fescue, Tall	135	119	4	0	12	19	11.85%
Festulolium	1	1	0	0	0	0	0.00%
Fine Fescue	15	13	1	0	1	2	13.33%
Fine Fescues	1	1	0	0	0	0	0.00%
Kale	7	6	1	0	0	1	14.29%
Kohlrabi	3	3	0	0	0	0	0.00%
Leek	1	1	0	0	0	0	0.00%
Lespedeza	1	0	0	1	0	1	100.00%
Lespedeza, Korean	3	3	0	0	0	0	0.00%
Lettuce	10	9	0	0	1	1	10.00%

Seed Kind Tested	Agricultural Seeds						
	Total	CL	SV	TV	MV	#VIOL	%VIOL
Mustard, India	1	1	0	0	0	0	0.00%
Oat	39	31	5	1	2	8	20.51%
Onion	6	2	2	0	2	4	66.67%
Orchardgrass	22	16	2	2	2	6	27.27%
Parsnip	2	2	0	0	0	0	0.00%
Pea, Field	4	4	0	0	0	0	0.00%
Pea, Garden	14	13	1	0	0	1	7.14%
Pepino	1	1	0	0	0	0	0.00%
Pepper	1	1	0	0	0	0	0.00%
Poa Trivialis	3	2	1	0	0	1	33.33%
Popcorn	5	5	0	0	0	0	0.00%
Pumpkin	2	0	0	0	2	2	100.00%
Radish	19	18	1	0	0	1	5.26%
Radish, Forage	3	3	0	0	0	0	0.00%
Rape	6	6	0	0	0	0	0.00%
Redtop	1	0	0	1	0	1	100.00%
Rye	58	47	9	2	0	11	18.97%
Ryegrass	7	5	1	0	1	2	28.57%
Ryegrass, Annual	15	13	2	0	0	2	13.33%
Ryegrass, Intermediate	1	1	0	0	0	0	0.00%
Ryegrass, Italian	7	7	0	0	0	0	0.00%
Ryegrass, Perennial	50	39	5	2	4	11	22.00%
Soybean	275	273	2	0	0	2	0.73%
Spelt	2	2	0	0	0	0	0.00%
Spinach	8	8	0	0	0	0	0.00%
Squash	1	1	0	0	0	0	0.00%
Teff	1	0	1	0	0	1	100.00%
Timothy	4	2	0	1	1	2	50.00%
Tomato	2	2	0	0	0	0	0.00%
Total Ryegrass	26	23	1	0	2	3	11.54%
Trefoil	2	1	1	0	0	1	50.00%
Triticale	14	10	2	0	2	4	28.57%
Turnip	11	11	0	0	0	0	0.00%
Vetch, Hairy	1	1	0	0	0	0	0.00%
Wheat	93	85	1	7	0	8	8.60%
<b>Total</b>	<b>1,310</b>	<b>1,167</b>	<b>67</b>	<b>22</b>	<b>54</b>	<b>143</b>	<b>10.92%</b>

Seed Kind Tested	Agricultural Seeds						
	Total	CL	SV	TV	MV	#VIOL	%VIOL
Lawn Mix	36	31	4	0	1	5	13.89%

Table IV.

Vegetable Seeds Wholesale Distributors			Vegetable Seeds			
			CL	SV	TV	MV
5 OAKS LAWN AND GARDEN	BATESVILLE	IN	2	0	0	0
APPLACRES INC	BEDFORD	IN	3	0	0	0
BARENBRUG USA INC	TANGENT	OR	1	0	0	1
BFG SUPPLY CO	HARRISONBURG	VA	8	0	0	0
BOTANICAL INTERESTS, INC	BROOMFIELD	CO	1	0	0	0
BURPEE GARDEN PRODUCTS	WARMINSTER	PA	11	0	0	0



Vegetable Seeds Wholesale Distributors			Vegetable Seeds			
			CL	SV	TV	MV
CAUDILL SEED COMPANY	MOREHEAD	KY	3	1	0	1
CHEROKEE SEEDS	SIMPSON	NC	2	0	0	0
COUNTRY RODES GREENHOUSES	ROCHESTER	IN	2	0	0	0
DAVIDSON GREENHOUSE & NURSERY INC	CRAWFORDSVILLE	IN	3	0	0	0
FELKE'S FINEST IN FLOWERS LLC	PLYMOUTH	IN	3	0	0	0
GRAHAM FEED & FARM CENTER	TERRE HAUTE	IN	2	0	0	0
HARRIS SEEDS	ROCHESTER	NY	1	0	0	0
HIGH MOWING ORGANIC SEEDS	WOLCOTT	VT	2	0	0	0
LIVINGSTON SEED COMPANY	NORTON	MA	5	0	0	0
LYNCH'S GARDEN CENTER	BRAZIL	IN	2	1	0	0
MARLIN PLANT KINGDOM	GREENFIELD	IN	2	0	0	0
NORTHGATE TRUE VALUE HARDWARE	ANDERSON	IN	2	0	0	0
PLANTATION PRODUCTS LLC	NORTON	MA	8	3	0	0
POSEY CO CO-OP	POSEYVILLE	IN	3	0	0	0
PRICE'S GARDEN CENTER INC	MARION	IN	3	0	0	0
PROGREEN GARDEN CENTER	CRAWFORDSVILLE	IN	2	1	0	0
SEEDS OF CHANGE	COMPTON	CA	8	0	0	1
SEEDWAY LLC	HALL	NY	16	2	0	0
SUPERIOR AG RESOURCES CO-OP	HUNTINGBURG	IN	1	0	0	0
THE CISCO COMPANIES	INDIANAPOLIS	IN	0	0	0	1
THE PAGE SEED COMPANY	GREENE	NY	5	0	0	0
TURNER SEED INC OF KY	WINCHESTER	KY	4	0	0	0
WEEKS SEEDS	SIMPSON	NC	1	0	0	1
WETSEL SEED COMPANY	HARRISONBURG	VA	12	1	0	0
WHITETAIL ACRES NURSERY & LANDSCAPING, INC	BROOKVILLE	IN	1	1	0	0
YODER'S BREMEN HARDWARE	BREMEN	IN	2	0	0	0
<b>Total</b>			<b>121</b>	<b>10</b>	<b>0</b>	<b>5</b>

Agricultural Seeds Wholesale Distributors			Agricultural Seeds			
			CL	SV	TV	MV
1ST CHOICE SEEDS	MILTON	IN	12	0	0	0
ACE HARDWARE	PERU	IN	2	0	0	0
ADLERS FEED EXPRESS	KOKOMO	IN	3	0	0	0
AG PLUS TURF CENTER	NEW HAVEN	IN	3	0	0	0
AGRICULTURAL ALUMNI SEED IMPROVEMENT ASSOC, INC	ROMNEY	IN	3	1	0	0
AGRIGOLD	SAINT FRANCISVILLE	IL	6	0	0	0
AGRIMAXX WHEAT COMPANY, LLC	MASCOUTAH	IL	6	0	0	0
AGVENTURE, INC	JOHNSTON	IA	19	0	0	0
AMERI-TURF	ANDERSON	IN	2	0	0	1
ARKANSAS COUNTY SEED CO INC	FAYETTEVILLE	AR	2	0	1	0
ASGROW SEED CO	CREVE COEUR	MO	47	0	0	0
AUTUMN ACRES GARDEN CENTER & LANDSCAPING	SOUTH BEND	IN	2	0	0	0

Agricultural Seeds Wholesale Distributors			Agricultural Seeds			
			CL	SV	TV	MV
AXIS SEED LLC	ADEL	IA	1	0	0	0
BAKER SEED LLC	WEST SALEM	IL	1	0	0	0
BARENBRUG USA INC	TANGENT	OR	24	0	0	3
BAYER CROPS SCIENCE	RESEARCH TRIANGLE PARK	NC	10	0	0	0
BECK'S SUPERIOR HYBRIDS, INC	ATLANTA	IN	39	0	0	0
BEHM & HAGEMANN INC	EAST PEORIA	IL	3	2	0	0
BENNETT'S GREENHOUSES INC	LAFAYETTE	IN	1	0	0	0
BFG SUPPLY CO	HARRISONBURG	VA	2	0	0	0
BIO GENE SEEDS	SARDINIA	OH	2	0	0	0
BIO-TOWN SEEDS INC	REYNOLDS	IN	3	0	0	0
BIOLOGIC LLC	WEST POINT	MS	1	0	0	0
BOTANICAL INTERESTS, INC	BROOMFIELD	CO	6	0	0	0
BRODBECK SEED INC	WABASH	IN	21	0	0	0
BROWN'S GARDEN & FLORAL SHOPPE	RENSELAER	IN	3	0	0	0
BURPEE GARDEN PRODUCTS	WARMINSTER	PA	18	2	0	0
BURTCH SEED CO, INC	CELINA	OH	3	0	0	0
BYRON SEEDS LLC	DONGOLA	IL	2	0	0	0
BYRON SEEDS, LLC	ROCKVILLE	IN	31	9	0	7
CAMERON T MILLS	WALTON	IN	2	0	0	0
CAUDILL SEED & WAREHOUSE CO, INC	LOUISVILLE	KY	22	2	0	0
CAUDILL SEED COMPANY	MOREHEAD	KY	7	1	0	0
CENTRAL FARM SUPPLY OF KY, INC	LOUISVILLE	KY	2	0	0	0
CHANNEL BIO LLC	CREVE COEUR	MO	14	0	0	0
CORN GENETICS, INC	REYNOLDS	IN	1	0	0	0
COVER CROP SERVICES	SHIPSHEWANA	IN	1	0	0	0
COX'S PLANT FARM, INC	CLAYTON	IN	4	0	0	0
CROOKHAM COMPANY	CALDWELL	ID	0	1	0	0
CROP TECH SEED COMPANY	VINCENNES	IN	5	0	0	0
CROP TECH SEED COMPANY	VINCENNES	IN	4	0	0	2
CROPLAN GENETICS	FORT DODGE	IA	2	0	0	0
DAIRYLAND SEED COMPANY, INC	KEWASKUM	WI	5	0	0	1
DEER CREEK SEED, INC	ASHLAND	WI	12	1	1	0
DEKALB GENETICS CORP	CREVE COEUR	MO	15	0	0	0
DIRECT ENTERPRISES INC	WESTFIELD	IN	9	2	0	0
DISCOUNT SEEDS, INC	WATERTOWN	SD	6	0	0	0
DLF	HALSEY	OR	20	1	0	2
E & R SEED	MONROE	IN	8	0	0	2
EAGLE EYE MARKETING GROUP	SANTA BARBARA	CA	0	0	0	1
EBBERTS FIELD SEEDS INC	COVINGTON	OH	4	0	0	0
EDD'S SUPPLIES INC	SHIPSHEWANA	IN	1	0	0	0
ENCAP LLC	GREEN BAY	WI	1	0	0	0
FAMILY ROOTS NURSERY	DALE	IN	2	1	0	0
FEDERAL HYBRIDS INC	WEST BEND	IA	7	1	0	0

Agricultural Seeds Wholesale Distributors			Agricultural Seeds			
			CL	SV	TV	MV
FRENCH'S HYBRIDS INC	WAKEMAN	OH	2	0	0	0
FRONTIERSMEN INC	KENTLAND	IN	5	0	0	0
GLENN'S VALLEY FEED & SEED	INDIANAPOLIS	IN	2	0	0	0
GLICK FARMS, INC	HARTSVILLE	IN	1	0	0	0
GOHN AG & CORE LLC	ROCHESTER	IN	3	0	0	0
GREAT LAKES HYBRIDS	OVID	MI	3	0	0	0
GREEN COVER SEED	BLADEN	NE	1	0	0	0
GROWMARK INC	BLOOMINGTON	IL	2	0	0	0
HABIG GARDEN SHOP	CARMEL	IN	1	1	0	0
HIGH MOWING ORGANIC SEEDS	WOLCOTT	VT	3	0	0	0
HOME FARMER	SANTA MARIA	CA	0	0	0	2
HUBNER SEED	MONTICELLO	IN	4	0	0	0
HURT SEED CO INC	HALLS	TN	1	0	0	0
J.R. SIMPLOT COMPANY	LIBERTY LAKE	WA	2	1	0	0
JONATHAN GREEN & SONS INC	HOWELL	NJ	4	1	0	0
KINGSBURY ELEVATOR INC	LA PORTE	IN	1	1	0	0
KITCHEN SEED COMPANY INC	ARTHUR	IL	1	0	0	0
L&M GLICK SEED	COLUMBUS	IN	6	0	1	0
LA CROSSE FORAGE & TURF SEED LLC	LA CROSSE	WI	14	1	1	0
LAKE VALLEY SEED	BOULDER	CO	5	0	0	1
LANGDON BROS SEED CORP	HARTFORD CITY	IN	1	0	0	0
LEGG SEEDS LLC	WINDFALL	IN	5	0	0	0
LESCO INC	CLEVELAND	OH	2	1	0	1
LEWIS HYBRIDS	URSA	IL	1	0	0	0
LEWIS SEED CO, INC	LOUISVILLE	KY	17	0	0	2
LG SEEDS	ELMWOOD	IL	5	0	0	0
LIVINGSTON SEED COMPANY	NORTON	MA	8	0	0	1
LORD SEED FARMS	WALTON	IN	4	0	0	0
LOVELAND PRODUCTS INC	LOVELAND	CO	41	0	0	0
LOVELAND PRODUCTS INC	GREELEY	CO	3	0	0	0
MARTIN SEEDS INC	WILLIAMSPORT	IN	3	0	0	0
MARTIN'S PET & GARDEN CENTER	ELKHART	IN	1	0	0	1
MASTERS CHOICE INC	ANNA	IL	3	0	0	0
MCKILLIP SEEDS INC	WABASH	IN	3	0	0	0
MOORE SEED FARM LLC	ELSIE	MI	1	0	0	0
MOUNTAIN VIEW SEEDS LTD	SALEM	OR	2	0	0	0
MURPHREE SEED FARM	COLLINSVILLE	AL	1	0	0	0
MYCOGEN SEEDS	INDIANAPOLIS	IN	20	0	0	0
NEXGRO GENETICS	NAMPA	ID	1	0	0	0
NOBBE SEEDS	GREENSBURG	IN	0	1	0	0
NRG AG SERVICES & SUPPLIES	NEW ROSS	IN	4	1	0	0
PARTNERS BRAND SEED CO. LLC	HOWE	IN	4	0	0	0
PENNINGTON SEED CO	LEBANON	OR	2	0	0	0

Agricultural Seeds Wholesale Distributors			Agricultural Seeds			
			CL	CL	CL	CL
PENNINGTON SEED INC	GREENFIELD	MO	7	1	0	0
PERFORMANCE SEED	WAITE PARK	MN	3	0	0	0
PIONEER HI-BRED INTERNATIONAL INC	JOHNSTON	IA	62	0	0	0
PLANTATION PRODUCTS LLC	NORTON	MA	15	1	0	0
PREFERRED ALFALFA GENETICS	STORY CITY	IA	2	0	0	0
PREMIER AG CO-OP	GREENSBURG	IN	2	0	0	0
PURPLE RIBBON SEEDS INC	MARSHALL	IN	9	0	0	0
RAGAN & MASSEY INC	PONCHATOULA	LA	0	0	0	1
RED GOLD INC	ORESTES	IN	1	0	0	0
RENEE'S GARDEN	FELTON	CA	2	0	0	0
RICHMOND'S FEED SERVICE INC	WAKARUSA	IN	2	0	0	0
RON MARTIN SEED & SUPPLY LLC	ELKHART	IN	6	0	0	0
RUPP SEEDS INC	WAUSEON	OH	3	0	0	0
RURAL KING	MATTOON	IL	21	1	0	0
RURAL KING	WAVERLY	OH	1	0	0	0
SADDLE BUTTE AG INC	SHEDD	OR	7	1	0	0
SCOTTS COMPANY	MARYSVILLE	OH	1	0	0	0
SEED CONSULTANTS INC	WASHINGTON COURT HOUSE	OH	6	0	0	0
SEEDS OF CHANGE	COMPTON	CA	2	0	0	0
SEEDWAY LLC	HALL	NY	3	0	0	0
SELECT SEED HYBRIDS	LAFAYETTE	IN	2	0	0	0
SPECIALTY HYBRIDS	MONTICELLO	IN	6	1	0	0
SPECTRUM AG HOLDINGS	LAFAYETTE	IN	3	0	0	0
STEWART SEED CO	GREENSBURG	IN	8	0	0	0
STEYER SEEDS LLC	MCCORDSVILLE	IN	10	0	0	0
STINE SEED COMPANY	ADEL	IA	14	0	0	0
SUNSTAR HYBRIDS	CULVER	IN	13	0	0	0
SUPERIOR AG RESOURCES CO-OP	EVANSVILLE	IN	2	0	0	0
SUPERIOR AG RESOURCES CO-OP	HUNTINGBURG	IN	1	1	0	0
SUPERIOR SEED INC	RUSHVILLE	IN	3	0	0	0
SYNGENTA SEEDS LLC	MINNEAPOLIS	MN	8	0	0	0
TENBARGE SEED CO, INC.	HAUBSTADT	IN	9	0	0	1
THE CISCO COMPANIES	INDIANAPOLIS	IN	69	3	1	5
THE DELONG CO INC	CLINTON	WI	2	0	0	0
THE GARDEN CENTER	INDIANAPOLIS	IN	2	0	0	0
THE GRAINERY COMPANY	DECATUR	IN	3	0	0	0
THE PAGE SEED COMPANY	GREENE	NY	6	0	0	1
THE SCOTTS COMPANY	MARYSVILLE	OH	3	0	0	1
TRI-STAR SEED CO., INC.	SPRING HILL	KS	5	0	0	1
TRUE VALUE HARDWARE	WABASH	IN	1	0	0	0
TURNER SEED INC	ANTIOCH	TN	34	2	0	1
TURNER SEED INC OF KY	WINCHESTER	KY	1	0	0	0
UNITY SEEDS LLC	LAFAYETTE	IN	9	0	0	0

Agricultural Seeds Wholesale Distributors			Agricultural Seeds			
			CL	SV	TV	MV
URBAN FARMER LLC	WESTFIELD	IN	2	1	0	0
WEAVER POPCORN	VAN BUREN	IN	2	0	0	0
WEEKS SEEDS	SIMPSON	NC	3	0	0	0
WETSEL SEED COMPANY	HARRISONBURG	VA	2	0	0	0
WHITETAIL INSTITUTE OF NORTH AMERICA	PINTLALA	AL	0	1	0	0
WINFIELD SOLUTIONS LLC	ST. PAUL	MN	29	0	5	0
WYATT SEED COMPANY	PETERSBURG	IN	1	0	3	0
WYCKOFF HYBRIDS INC	VALPARAISO	IN	13	0	0	0
X-SEED, LLC	BECKER	MN	1	0	0	0
X-SEED, LLC	BECKER	MN	2	0	0	0
YERKS SEED INC	WOODBURN	IN	6	0	0	0
<b>Total</b>			<b>1,055</b>	<b>45</b>	<b>13</b>	<b>38</b>

Lawn Mix Wholesale Distributors			Lawn Mix			
			CL	SV	TV	MV
AG PLUS TURF CENTER	NEW HAVEN	IN	2	0	0	0
BEHM & HAGEMANN INC	EAST PEORIA	IL	2	1	0	0
DEER CREEK SEED, INC	ASHLAND	WI	2	0	0	1
DLF	HALSEY	OR	2	1	0	0
J.R. SIMPLOT COMPANY	LIBERTY LAKE	WA	5	1	0	0
MOUNTAIN VIEW SEEDS LTD	SALEM	OR	2	0	0	0
PENNINGTON SEED CO	LEBANON	OR	2	0	0	0
PENNINGTON SEED INC	GREENFIELD	MO	2	1	0	0
SCHULTZ TURF & FORAGE SEED	DIETERICH	IL	2	0	0	0
THE CISCO COMPANIES	INDIANAPOLIS	IN	1	0	0	0
THE SCOTTS COMPANY	MARYSVILLE	OH	5	0	0	0
X-SEED, LLC	BECKER	MN	4	0	0	0
<b>Total</b>			<b>31</b>	<b>4</b>	<b>0</b>	<b>1</b>