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

2022

Mark LeBlanc, Ph.D. - State Chemist & Seed Commissioner

2022
Indiana Seed Regulatory Program
Annual Report

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Indiana Seed Control 2022 Annual Report

Presented here within is the 2022 annual report of the Office of Indiana State Seed Commissioner. It represents a summary of official inspection 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:

Scottie Pouliot

Jessica McVay & Scottie Pouliot

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 2022

  Enforcement action initiated in 2022 was dictated by the seriousness of the violations found as a result of either laboratory analysis or inspectional observations discovered during facility inspections. Sample numbers were down due to the global pandemic.

See Appendix on page 8 for additional details

Official Samples Tested in 2022:	1,306
Official Samples Correctly Labeled:	1,112
Samples Incorrectly Labeled:	199
Total Tests Completed on Samples:	2,479

Breakdown of 2022 Violations: *multiple violations per sample in some cases	
Minor Violations Based on Product Analysis: (Relabeling Orders):	77
Serious Violations Based on Product Analysis: (Stop Sale Orders):	59
Technical Violations Based on Label Analysis:	50
Inspector-Issued Stop Sale Orders (Number of Seed Lot's Involved):	318
Active Indiana Seed Permits	400

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).

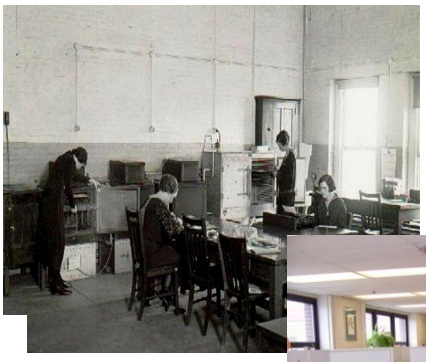
** Relabeling orders issued against seed lots classified as "minor" violations as a result of laboratory analysis*
*** Stop sale action taken against seed lots classified as "serious" violations as a result of laboratory analysis*

- ## USDA FEDERAL SEED ACT ENFORCEMENT

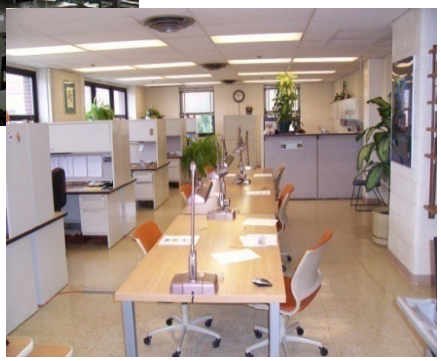
81 samples were sent to the Federal Lab for apparent violations of the Federal Seed Act. 41.98 percent were found to be Federal Violations with a warning letter sent and/or federal fine

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 47907-206

PROFESSIONAL AFFILIATIONS …

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

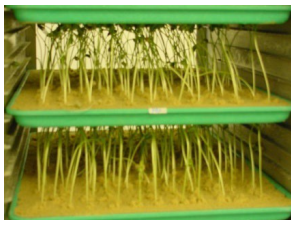
AASCO (Association of American Seed Control Officials) The Seed Commissioner's office participates as an active member of AASCO The Association of American Seed Control Officials is an organization of seed regulatory officials from the United States and Canada. The Association was organized in 1949, 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 (RUSSL) 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). This year we have increased our testing fees. They are $18 per sample for individual purity, germination and/or identification tests, and $36 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.

APPENDIX

Table I

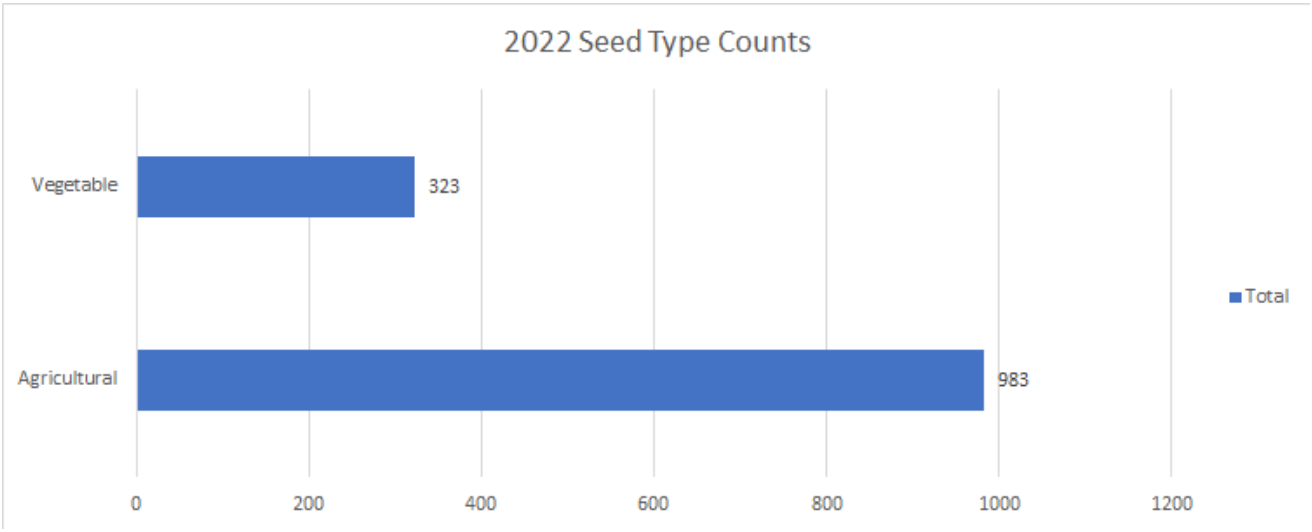


Table II

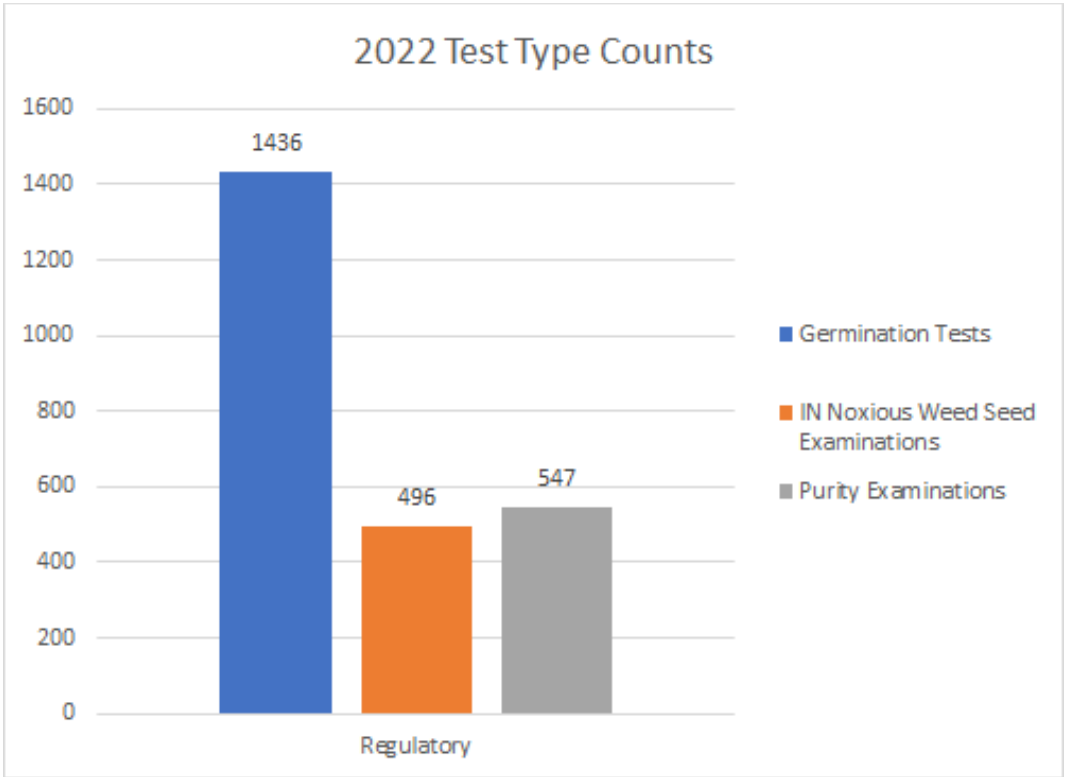


Table III

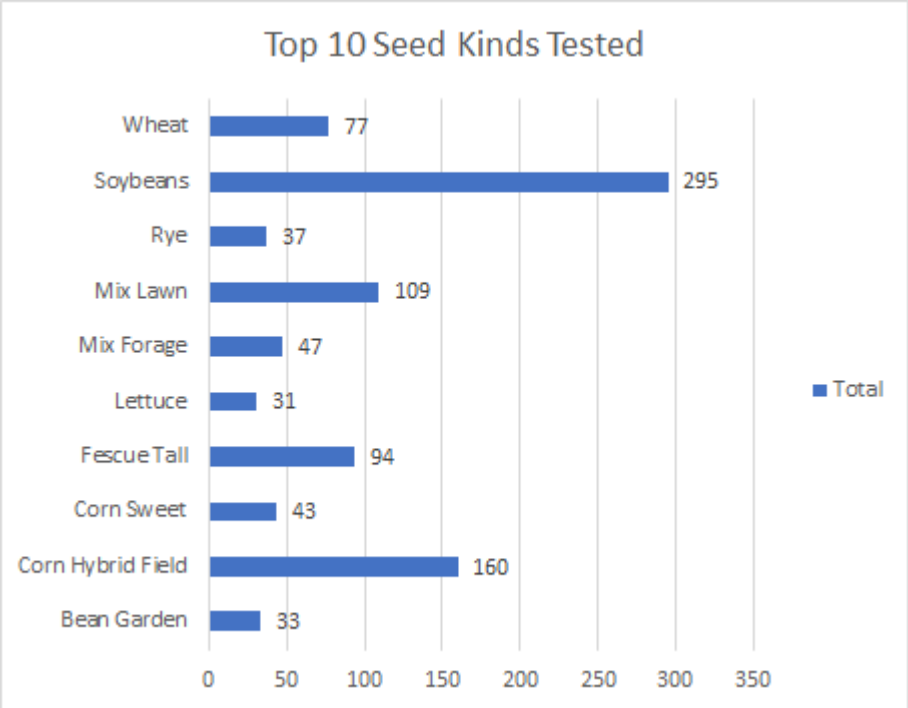

Top 10 Seed Kinds Tested
Wheat
77
Soybeans
295
Rye
37
Mix Lawn
109
Mix Forage
47
Lettuce
31
Fescue Tall
94
Corn Sweet
43
Corn Hybrid Field
160
Bean Garden
33
0
50
100
150
200
250
300
350
Total

Table IV

Seed Kind	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Alfalfa	11	9	2			2	18.18%
Arugula	1	1				0	0.00%
Asparagus	1	1				0	0.00%
Barley	4	2	1		1	2	50.00%
Bean Garden	33	26	4	3		7	21.21%
Bean Kideny	1	1				0	0.00%
Bean Kidney Red	1			1		1	100.00%
Bean Lima	2	1		1		1	50.00%
Bean Red Kidney	1	1				0	0.00%
Beans Garden	2		1	1		2	100.00%
Beet	9	8	1			1	11.11%
Beets	2	1		1		1	50.00%
Bluegrass Kentucky	15	15				0	0.00%
Bok Choy	3	3				0	0.00%
Broccoli	11	11				0	0.00%
Brussel Sprouts	3	3				0	0.00%
Buckwheat	2	1			1	1	50.00%
Cabbage	6	6				0	0.00%
Cantaloupe	2	1	1			1	50.00%
Carrot	22	21		1		1	4.55%
Carrots	3	3				0	0.00%
Cauliflower	5	3		2		2	40.00%
Celery	5	3		2		2	40.00%
Chard Swiss	1	1				0	0.00%
Chicory	1		1			1	100.00%

Seed Kind	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Clover Alsike	2	1	1			1	50.00%
Clover Berseem	1	1				0	0.00%
Clover Crimson	5	5				0	0.00%
Clover Ladino	1	1				0	0.00%
Clover Red	9	8	1			1	11.11%
Clover White	1	1				0	0.00%
Collards	5	5				0	0.00%
Corn Hybrid Field	159	156			3	3	1.89%
Corn Sweet	43	42		1		1	2.33%
Cornsalad	2	2				0	0.00%
Cowpea	4	3			1	1	25.00%
Cucumber	7	7				0	0.00%
Eggplant	1	1				0	0.00%
Endive	1	1				0	0.00%
Fescue Creeping Red	1	1				0	0.00%
Fescue Fine	2	1		1		1	50.00%
Fescue Tall	94	69	18	2	5	25	26.60%
Festulolium	1	1				0	0.00%
Field Hybrid Corn	9	9				0	0.00%
Kale	11	11				0	0.00%
Kohlrabi	5	4			1	1	20.00%
Lawn Mix	3	3				0	0.00%
Leek	4	3		1		1	25.00%
Lespedeza Common	1	1				0	0.00%
Lettuce	31	28	1	2		3	9.68%
Melon	1	1				0	0.00%
Millet Pearl	2	2				0	0.00%
Mix Forage	46	23	12	8	3	23	50.00%
Mix Lawn	108	78	19	11		30	27.78%
Mustard	6	6				0	0.00%
Oats	16	11	3	1	1	5	31.25%
Okra	4	4				0	0.00%
Onion	23	15	1	7		8	34.78%
Orchardgrass	2		1	1		2	100.00%
Pak Choi	2	2				0	0.00%

Seed Kind	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Parnsip	1	1				0	0.00%
Parnsips	1	1				0	0.00%
Parsley	1	1				0	0.00%
Parsnip	2	2				0	0.00%
Parsnips	1	1				0	0.00%
Pea Field	2			1	1	2	100.00%
Pea Garden	12	11		1		1	8.33%
Peas	1	1				0	0.00%
Peas Garden	1	1				0	0.00%
Pepper	3	3				0	0.00%
Pepper Sweet	1	1				0	0.00%
Popcorn	6	5		1		1	16.67%
Pumpkin	1	1				0	0.00%
Radish	13	12	1			1	7.69%
Rape	1	1				0	0.00%
Rapeseed	1	1				0	0.00%
Rutabaga	2	2				0	0.00%
Rye	37	23	4	3	7	14	37.84%
Ryegrass	10	9	1			1	10.00%
Ryegrass Annual	7	6	1			1	14.29%
Ryegrass Perennial	8	8				0	0.00%
Sorghum Sudangrass	4	4				0	0.00%

Seed Kind	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Sorrel Common	1	1				0	0.00%
Soybeans	295	267	13	8	7	28	9.49%
Spinach	8	7	1			1	12.50%
Squah	1	1				0	0.00%
Squash	4	2	1	1		2	50.00%
Sudangrass	2	2				0	0.00%
Sunflower	2	1		1		1	50.00%
Sweetclover Yellow	1	1				0	0.00%
Swiss Chard	1	1				0	0.00%
Teff	1	1				0	0.00%
Timothy	9	5	2		2	4	44.44%
Tomato	4	4				0	0.00%
Triticale	7	5	1	1		2	28.57%
Turnip	8	6	1		1	2	25.00%
Vetch Common	1	1				0	0.00%
Vetch Hairy	5	3	1	1		2	40.00%
Watermelon	3	3				0	0.00%
Wheat	77	72	1		4	5	6.49%
Grand Total	**1306**	**1107**	**96**	**65**	**38**	**199**	**15.24%**

Table V

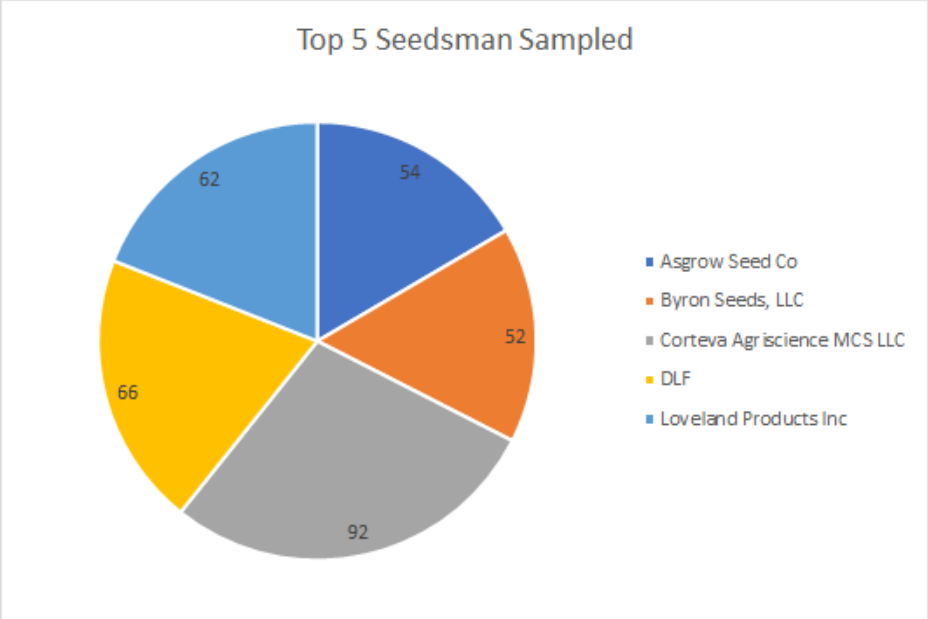
Seedsman Name	State	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Acorn Community	VA	2	2				0	0.00%
Ag Plus, Inc	IN	2	2				0	0.00%
Agricultural Alumni Seed Improvement Assoc, Inc	IN	2	2				0	0.00%
AgriGold	IL	8	7	1			1	12.50%
AgriMAXX Wheat Company, LLC	IL	7	6			1	1	14.29%
American Seed Corp	MA	2	2				0	0.00%
Amturf Enterprises LLC	OR	4	3	1			1	25.00%
Ani-Logics Outdoors, LLC	MN	1		1			1	100.00%
Asgrow Seed Co	MO	54	53	1			1	1.85%
Back to the Roots	CA	6	6				0	0.00%
Baker Seed LLC	IL	3	1	1	1		2	66.67%
Barenbrug USA Inc	OR	49	35	9	5		14	28.57%
BASF Corporation	NC	9	8		1		1	11.11%
Beck's Superior Hybrids, Inc	IN	38	37	1			1	2.63%
Bentley Seed Co	NY	3	3				0	0.00%
Berlin Seeds	OH	14	11	1	2		3	21.43%
BFG Supply Co	VA	27	25	1	1		2	7.41%
Biologic LLC	MS	2	2				0	0.00%
Bio-Town Seeds Inc	IN	3	3				0	0.00%
Bonide Products LLC.	NY	1		1			1	100.00%
Botanical Interests, Inc	CO	7	7				0	0.00%
Burpee Garden Products	PA	40	37	2	1		3	7.50%
Burtch Seed Co, Inc	OH	2	2				0	0.00%
Byron Seeds LLC	IL	1	1				0	0.00%
Byron Seeds, LLC	IN	51	44	4	1	2	7	13.73%
Cameron T Mills	IN	3	3				0	0.00%
Cappel Certified Seeds Inc	IL	1			1		1	100.00%
Caudill Seed & Warehouse Co, Inc	OK	1	1				0	0.00%
Caudill Seed Company	KY	32	27		3	2	5	15.63%
Central Crop Care	KY	1				1	1	100.00%
Central Farm Supply of KY, Inc	KY	2	2				0	0.00%
Channel Bio LLC	MO	31	29	1	1		2	6.45%
Columbia Grain Int. LLC	WA	1	1				0	0.00%
Conserv FS, Inc	IL	1	1				0	0.00%
Conservation Blueprint, LLC	NE	3		2	1		3	100.00%
Corn Genetics, Inc	IN	1	1				0	0.00%
Cornucopia Seeds	CA	6	6				0	0.00%
Corteva Agriscience MCS LLC	IA	92	89	1	2		3	3.26%
Cover Crop Partners LLC	IN	3	1	1		1	2	66.67%
Cover Crop Shop	OH	2	1			1	1	50.00%
Crookham Company	ID	2	2				0	0.00%
Crop Tech Seed Company	IN	10	9		1		1	10.00%
De Bruyn Seed Co Inc	MI	6	4	1	1		2	33.33%
Deer Creek Seed, Inc	IL	1		1			1	100.00%

Seedsman Name	State	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Dekalb Genetics Corp	MO	18	18				0	0.00%
Denzler Seeds Inc	IN	15	15				0	0.00%
Direct Enterprises Inc	IN	13	12		1		1	7.69%
DKG Seed Farms	OH	1				1	1	100.00%
DLF	OR	66	40	19	2	5	26	39.39%
DLF USA Inc.	WI	16	14	1	1		2	12.50%
Domain Outdoor Llc	WI	4	2	1	1		2	50.00%
E & R Seed	IN	11	8	2	1		3	27.27%
Eagle Eye Marketing Inc	CA	1			1		1	100.00%
Ebberts Field Seeds Inc	OH	7	4			3	3	42.86%
Fosters Inc	IL	4	4				0	0.00%
Frontiersmen Inc	IN	6	4	1		1	2	33.33%
Glick Seed Service	IN	3	3				0	0.00%
Gohn Ag & Core LLC	IN	1				1	1	100.00%
Gowan Seed Co	CA	1	1				0	0.00%
Green Cover Seed	NE	2	2				0	0.00%
Green Garden Products	MA	34	28	1	5		6	17.65%
Green Seed Ag llc	IN	1		1			1	100.00%
Green Thumb Seeds	SD	1	1				0	0.00%
H+W Technologies	IN	6	6				0	0.00%
High Mowing Organic Seeds	VT	1	1				0	0.00%
Holmes Seed Co.	OH	1	1				0	0.00%
Hoosier Pride Genetics, Inc	IN	6	3	1		2	3	50.00%
Hundley Seed Co	VA	1	1				0	0.00%
Hurt Seed Co Inc	TN	2	2				0	0.00%
Isch Seeds, LLC	IN	1				1	1	100.00%
Jonathan Green & Sons Inc	NJ	4	2	1	1		2	50.00%
Kingsbury Elevator Inc	IN	1	1				0	0.00%
L&M Glick Seed	IN	2	2				0	0.00%
Lake Valley Seed	CO	11	11				0	0.00%
Lakeview Farms	MO	5	3			2	2	40.00%
Landscape Supply, Inc	VA	1	1				0	0.00%
Legacy Seeds Acquisition Company LLC	WI	3	3				0	0.00%
Legg Seeds LLC	IN	3	2			1	1	33.33%
LESCO Inc	OH	2		2			2	100.00%
Lewis Seed Co, Inc	KY	10	6		4		4	40.00%
LG Seeds	IL	6	6				0	0.00%
Livingston Seed Company	MA	23	21	1	1		2	8.70%

Seedsman Name	State	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Loveland Products Inc	CO	62	61	1			1	1.61%
M.S. Technologies LLC	IA	6	6				0	0.00%
Merschman Seeds Inc	IA	2	2				0	0.00%
Mountain View Seeds Ltd	OR	5	5				0	0.00%
Murphree Seed Farm	AL	1	1				0	0.00%
Olds Garden Seed	NY	34	29	3	2		5	14.71%
Outward Ag LLC	IL	1	1				0	0.00%
Partners Brand Seed Co. LLC	IN	5	5				0	0.00%
Pence Group	IN	3	1	1		1	2	66.67%
Pennington Seed Inc	MO	14	13	1			1	7.14%
Performance Seed	MN	6	4	1	1		2	33.33%
Prince Corporation	WI	1	1				0	0.00%
Pro Harvest Seeds Inc	IL	3	3				0	0.00%
Purple Ribbon Seeds Inc	IN	6	6				0	0.00%
Ragan & Massey Inc	LA	2	1	1			1	50.00%
Rea Hybrids	MO	1	1				0	0.00%
Real World Whitetails, Inc	IL	1				1	1	100.00%
Red River Seeds	MB	1		1			1	100.00%
Renee's Garden	CA	5	4		1		1	20.00%
Rispens Seed Inc	IL	1	1				0	0.00%
RK Holdings, LLP	IL	11	9			2	2	18.18%
Rohrer Seeds	PA	6	5		1		1	16.67%
Rose Agri-Seed Inc.	OR	11	9	2			2	18.18%
Rupp Seeds Inc	OH	5	3		2		2	40.00%
Rush Seeds	IN	1	1				0	0.00%
Saddle Butte Ag Inc	OR	2	1	1			1	50.00%
Sandia Seed	UT	1	1				0	0.00%
Sauder Farm Country	KY	4	4				0	0.00%
Scott Pet Products	IN	5	4		1		1	20.00%
Seed Consultants Inc	OH	2	2				0	0.00%
Seed Genetics-Direct LLC	OH	1	1				0	0.00%
Seed Savers Exchange	IA	1	1				0	0.00%

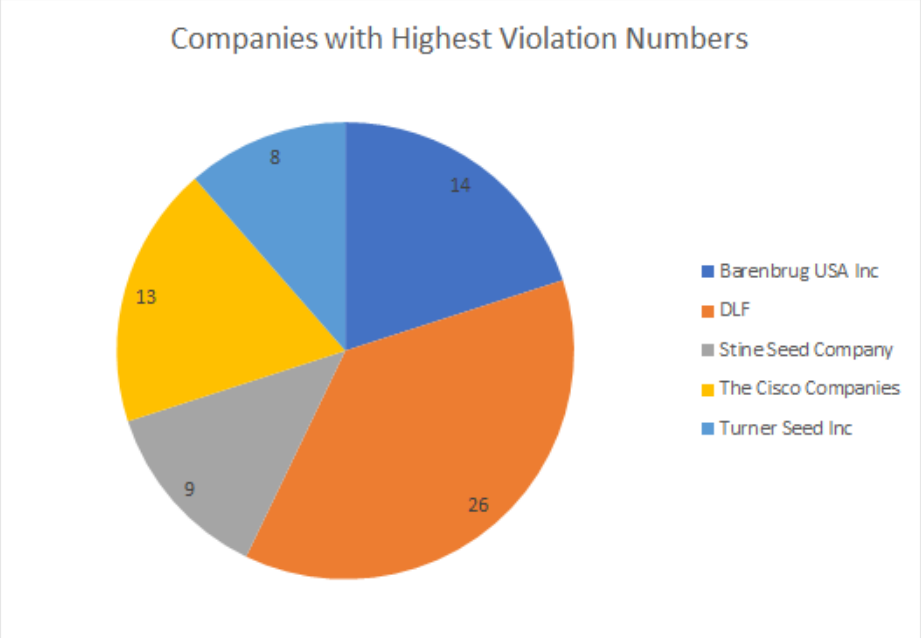
Seedsman Name	State	Total	Correctly Labeled	Minor Violation	Serious Violation	Technical Violation	Total Violations	% Violations
Seeds of Change	CA	6	5		1		1	16.67%
Seedway LLC	NY	4	4				0	0.00%
Specialty Hybrids	MO	8	8				0	0.00%
Spectrum Ag Holdings	IN	5	5				0	0.00%
Stewart Seed Co	IN	5	5				0	0.00%
Stine Seed Company	IA	34	25	6	2	1	9	26.47%
Stone Seed Co	MO	4	4				0	0.00%
Sunstar Hybrids	IN	9	8			1	1	11.11%
Superior Ag Resources Co-Op	IN	1		1			1	100.00%
Superior Seed Inc	IN	3	3				0	0.00%
Syngenta Seeds LLC	ID	2	2				0	0.00%
Tenbarge Seed	IN	7	6	1			1	14.29%
The Charles C. Hart Seed Co	CT	2	2				0	0.00%
The Cisco Companies	IN	40	27	5	5	3	13	32.50%
The DeLong Co Inc	WI	1	1				0	0.00%
The Page Seed Company	NY	7	7				0	0.00%
The Scotts Company	OH	23	22		1		1	4.35%
Tri-Star Seed Co., Inc.	KS	7	5	2			2	28.57%
Turner Seed Inc	TN	35	27	5	2	1	8	22.86%
Urban Farmer LLC	IN	2			2		2	100.00%
Walnut Creek Seeds LLC	OH	1	1				0	0.00%
Weaver Popcorn Hybrids, LLC	IN	2	1		1		1	50.00%
Whitetail Essentials Deer Products LLC	IN	2				2	2	100.00%
Whitetail Institute of North America	AL	2		1	1		2	100.00%
Winfield Solutions LLC	ID	41	37	1	2	1	4	9.76%
Wyatt Seed Company	IN	1	1				0	0.00%
Wyckoff Hybrids Inc	IN	9	9				0	0.00%
Wyffels Hybrids Inc	IL	1	1				0	0.00%
Yerks Seed Inc	IN	1	1				0	0.00%
Grand Total		**1306**	**1107**	**96**	**65**	**38**	**199**	**15.24%**

Table VI



* Based on total count of samples

Table VII



* Based on total count of violations