

## PESTICIDE RESIDUE TESTING FOR GRAIN

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## 1. PURPOSE

This directive specifies the procedures for obtaining pesticide residue testing services for grain under the U.S. Grain Standards Act (USGSA).

## 2. REPLACEMENT HIGHLIGHTS

This directive supersedes FGIS Program Directive 9180.40, Pesticide Residue Testing for Grain, dated May 22, 2019. This directive is updated to reflect the addition of new pesticide residues testing methods, changes to limits of detections and update the lists for routine and special compounds.

## 3. BACKGROUND

Upon request, the United States Department of Agriculture (USDA), Agricultural Marketing Service (AMS) Federal Grain Inspection Service (FGIS) provides pesticide residue testing service for grains.

The service is performed by FGIS, Technology and Science Division (TSD) in Kansas City, Missouri. The service is provided using gas chromatography/mass spectrometry or gas chromatography/tandem mass spectrometry for listed routine compounds and liquid chromatography/tandem mass spectrometry for special compounds.

- a. Compounds Tested. FGIS tests for the following residue compounds:
  - (1) Routine Compounds. Compounds are listed in Attachment 1 by commodity.
  - (2) Special Compounds. Special compounds are listed in Attachment 1 by commodity. The applicant must select which lists will be tested for the sample. Contact TSD's Analytical Chemistry Branch (ACB) at 816-819-0401 for expected sample turnaround time for special compounds. For compounds not listed for a particular commodity, the applicant must contact the TSD's ACB at 816-819-0401 to determine the ability to test.
- b. Types of Services. There are three types of pesticide residue testing services available:
  - (1) Official Sample-Lot Service. Analysis is based on an official sample obtained and analyzed by official personnel.
  - (2) Submitted Sample Service. Analysis is based on a sample submitted by the applicant for service and analyzed by official personnel.
  - (3) Warehouseman's Sample-Lot Inspection Service. Analysis is based on an official sample obtained by a licensed warehouseman sampler and analyzed by official personnel.

- c. Basis of Determination. All grains are tested on the basis of the sample as a whole. Shiplots and combined lots are tested on a composite sample. Upon request, testing can be performed on a subplot basis.

#### 4. RESPONSIBILITIES

- a. Applicant for Service. The applicant may request the service through the Official Service Provider (OSP) (official sample lot inspection) or mail a sample directly to TSD. The request must include the applicant's name, address, and telephone number; the desired test(s); and whether qualitative or quantitative certification is desired with contract specification level, if applicable.

- b. TSD.

- (1) Official Sample-Lot Service and Warehouse Samples. For official sample lot service and warehouseman's samples sent to TSD, TSD is responsible for performing the requested test, maintaining a file sample, and reporting the results to the FGIS Field Office/OSP or applicant for service, as applicable, in a timely manner.

TSD must also provide the FGIS field office with complete information (e.g., management code, billing units, etc.) for billing.

For samples sent to TSD by an OSP, TSD is also responsible for billing the OSP for the testing services.

- (2) Submitted Sample Service. For submitted samples, TSD is responsible for performing the requested test, maintaining a file sample, issuing the certificate, and billing the applicant for the services.

- c. Field Offices.

- (1) Official Sample Lot Services and Warehouse Samples. For official sample lot service and warehouse samples, FGIS Field Offices must complete a Pesticide Residue Testing Transmittal Form (see Attachment 2), forward the sample and form to TSD for testing, issue the certificate, and bill the applicant for the testing services.

- (2) Submitted Sample Service. FGIS Field Offices must direct applicants to forward samples directly to TSD for testing and certification.

- d. Official Service Providers.

- (1) The OSP must complete a Pesticide Residue Testing Transmittal Form (see Attachment 2), forward the sample and form to TSD for testing, issue the certificate, and bill the applicant for the testing services.

- (2) Submitted Samples. For submitted samples, the OSP must direct applicants to forward samples directly to TSD for testing and certification.

## 5. PREPARING AND FORWARDING SAMPLES

- a. Sample Preparation. From a representative sample, use a Boerner divider to obtain a minimum 500-gram sample and place in an airtight container. Retain a second sample of at least 500-grams as a reserve in an airtight container (e.g., double-sealed plastic bag) in case the first test sample is lost and must be resubmitted. Work samples may be used once they have served their intended purpose.
- b. Sample Forwarding. Place the container inside a canvas bag and include a copy of the certificate, a copy of the request for service, and completed Pesticide Residue Testing Transmittal Form (see Attachment 2).

Provide all necessary information to ensure timely results. Write "PAS" on the shipping label in large, bold letters. If the applicant arranges for sample delivery, affix a blank tag to the sealed sample marked accordingly with the desired test service before surrendering it to the applicant.

Mail all samples to:

USDA, AMS, FGIS  
Technology and Science Division  
10383 North Ambassador Drive  
Kansas City, Missouri 64153-1394

## 6. REVIEW INSPECTIONS

- a. 7 CFR 800.125 and 800.135 permit a review inspection on either official grade/factors or official criteria. When requested, a review inspection for official grade/factors and official criteria may be handled separately even though both sets of results are reported on the same certificate.
- b. Applicants may request either qualitative or quantitative review analysis unless the original or a review analysis was quantitative. Then, only a quantitative analysis is available. All review inspection results replace previous results.

## 7. CERTIFICATION

- a. Residue results may be reported on a separate certificate or on the certificate for grade (at the applicant's option). When residues are certified for export certificates, the date of the certificate is the date that loading was completed. The date of domestic certificates is the date that pesticide residue testing results are received. See the Grain Inspection Handbook, Book IV, Chapter 3, Certificates, for further certification instructions

b. Certify the test results in the “Results” section of the certificate:

(1) Qualitative Test Results. Show the results as meeting or exceeding a limit.

For example: Acetochlor < 3 ppb  
Carboxin > 1 ppb

(2) Quantitative Test Results. Show the results that meet or exceed the detection limit as reported by TSD. Occasionally, detection limits for certain compounds may need to be higher than the limits shown in the compound lists based on quality control results.

For example: Fluridone 1.5 ppb  
Oxadixyl 21 ppb  
Malathion 610 ppb

For quantitative test results that are less than the detection limit, certify as less than the detection limit.

For example: Aldrin < 13 ppb, Malathion < 6 ppb

c. Optional Certification:

If requested by the applicant, use the following statement in the “Remarks” section of the certificate.

“(Name of pesticide) residue less than (record contract specification).”

## 8. FEES

Fees are shown in FGIS Program Directive 9180.74 found on the AMS FGIS website at [https://www.ams.usda.gov/sites/default/files/media/FGIS9180\\_74.pdf](https://www.ams.usda.gov/sites/default/files/media/FGIS9180_74.pdf).

Testing fees are applicable to any level of service (original inspection, review inspection, appeal inspection, or Board appeal inspection) and do not include a sampling service fee that, if applicable, is assessed separately in accordance with the applicable fee schedules.

## 9. ATTACHMENTS

Attachment 1 – Routine and Special Compound Lists By Commodity and Pesticide Analysis Method (PAM)

Attachment 2 – Pesticide Residue Testing Transmittal Form

Corn and Soybeans – Routine List  
PAM - 1

PESTICIDE RESIDUE	Detection Limit (ppb)	PESTICIDE RESIDUE	Detection Limit (ppb)
Acetochlor	3	Indoxacarb	27
Alachlor	1	Lactofen	9
Aldrin	13	Malathion	6
Boscalid	2	Malathion O-analog	3
Carboxin	1	Metalaxyl	2
Chlorpyrifos	3	Metolachlor	2
Clomazone	3	Metribuzin	7
Cyfluthrin	10	Myclobutanil	2
Cyhalothrin	12	Norflurazon	15
Cypermethrin	25	Norflurazon desmethyl	5
DDD-p,p'	2	Omethoate	4
DDE-p,p'	2	Oxadixyl	3
Deltamethrin	15	Oxyfluorfen	2
Dieldrin	2	Parathion	4
Dimethenamid	1	Parathion methyl	6
Dimethoate	8	Parathion methyl O-analog	2
Disulfoton	6	Parathion O-analog	25
Disulfoton sulfone	30	Pendimethalin	6
Disulfoton sulfoxide	4	Permethrin	9
Endrin	5	Phorate	4
Esfenvalerate	10	Prallethrin	45
Ethafluralin	1	Propetamphos	1
Fenoxaprop ethyl	2	Pyriproxyfen	32
Fenpropathrin	4	Quizalofop ethyl	2
Fluazifop-P-butyl	3	Resmethrin	2
Fludioxonil	8	Tetrahydrophthalimide	15
Fluridone	1	Trifluralin	2
Hydroprene	21		

Soybeans - Special Compound List  
PAM - 2

PESTICIDE RESIDUE	Detection Limit (ppb)
3-Hydroxycarbofuran	3
5-Hydroxythiabendazole	3
Acephate	40
Aldicarb	10
Aldicarb sulfone	3
Aldicarb sulfoxide	10
Bendiocarb	1.5
Benoxacor	3
Carbaryl	3
Carbendazim	1.5
Carbofuran	3
Chlorimuron ethyl	10
Clofencet	30
Clothianidin	3
EPTC	3
Flumetsulam	10
Imazaquin	3
Imidacloprid	3
Linuron	3
Spinosyn A	3
Sulfentrazone	15
Thiabendazole	3
Thifensulfuron methyl	6

Soybeans - Special Compound List  
PAM - 3

PESTICIDE RESIDUE	Detection Limit (ppb)
Azoxystrobin	1
Boscalid	7
Cyproconazole	5
Difenoconazole	1
Epoxiconazole	4
Fenarimol	31
Fluquinconazole	14
Flutriafol	4
Myclobutanil	4
Propiconazole	3
Pymetrozine	3
Pyraclostrobin	1
Tebuconazole	4
Tetraconazole	6
Thiamethoxam	1
Trifloxystrobin	1

Corn and Soybeans -  
Special Compound List  
PAM - 5

PESTICIDE RESIDUE	Detection Limit (ppb)
2,4-dichlorophenoxyacetic acid (2,4-D)	5

Wheat – Routine Compound List  
PAM - 9

PESTICIDE RESIDUE	Detection Limit (ppb)	PESTICIDE RESIDUE	Detection Limit (ppb)	PESTICIDE RESIDUE	Detection Limit (ppb)
3-Hydroxycarbofuran	6	Dimethomorph	19	Methoxychlor	5
Acetochlor	3	Disulfoton	3	Metolachlor	3
Allethrin	3	Disulfoton sulfone	13	Metribuzin	6
Atrazine	3	Endosulfan I	6	Myclobutanil	13
Bromuconazole	10	Endosulfan II	6	Omethoate	3
Carbaryl	6	Endosulfan sulfate	3	Parathion	5
Carbofuran	34	Epoxiconazole	4	Parathion O-analog	19
Carboxin	3	Etridiazole	10	Phorate	8
Carfentrazone ethyl	3	Fenbuconazole	18	Phorate sulfone	5
Chlorpyrifos	6	Fenbuconazole 9129	5	Piperonyl butoxide	6
Chlorpyrifos methyl	19	Fenbuconazole 9130	4	Pirimiphos methyl	3
Clodinafop propargyl	3	Fenitrothion	6	Propanil	5
Cyanazine	5	Fludioxonil	9	Propiconazole	11
Cyfluthrin	23	Flufenacet	6	TCMTB	25
Cyhalothrin	10	Fluridone	3	Tebuconazole	10
Cyproconazole	11	Heptachlor epoxide	3	Tetraconazole	4
DDE-p,p'	3	Hexaconazole	4	Thiabendazole	13
Deltamethrin	20	Imazalil	28	Thiamethoxam	3
Diazinon	3	Lindane	6	Triadimefon	3
Diazinon O-analog	6	Linuron	25	Triadimenol	6
Diclofop methyl	3	Malathion	3	Triallate	6
Dieldrin	6	Malathion O-analog	5	Trifluralin	6
Difenoconazole	4	Metalaxyl	6	Triticonazole	4
Dimethoate	28	Methoprene	13		

Corn, Soybeans, and Wheat -  
Special Compound List  
PAM - 10

PESTICIDE RESIDUE	Detection Limit (ppb)
3-MPPA	50
Glufosinate ammonium	50
Glyphosate	10

Corn and Soybeans -  
Special Compound List  
PAM - 11

PESTICIDE RESIDUE	Detection Limit (ppb)
Paraquat	10
Diquat	10

Soybeans -  
Special Compound List  
PAM - 12

PESTICIDE RESIDUE	Detection Limit (ppb)
2,4-Dichlorophenoxyacetic acid (2,4-D)	10
2,6-Dichlorosaicylic acid (DCSA)	200
5-Hydroxy-dicamba (5-OH)	100
Dicamba	100

Wheat - Special Compound List  
Spinosad

PESTICIDE RESIDUE	Detection Limit (ppb)
Spinosad (spinosyn A and D)	10 (spinosyn A) 10 (spinosyn D)

Pesticide Residue Testing Transmittal Form		
<b>Applicant's Name</b>		
<b>Applicant's Address</b>		
<b>Applicant's Telephone Number</b>		
<b>Email Address to Receive Certificate(s)</b>		
<b>Desired Certification (Qualitative/Quantitative)</b>		
<b>Contract Specification(s)</b>		
	<b>Routine Compounds</b>  <input type="checkbox"/> PAM - 1 (corn and soybeans) <input type="checkbox"/> PAM - 9 (wheat only)	<b>Special Compound Lists</b>  <input type="checkbox"/> PAM - 2 (soybeans only) <input type="checkbox"/> PAM - 3 (soybeans only) <input type="checkbox"/> PAM - 5 (corn and soybean) <input type="checkbox"/> PAM - 10 (corn, soybeans, and wheat) <input type="checkbox"/> PAM - 11 (corn and soybeans) <input type="checkbox"/> PAM - 12 (soybeans only) <input type="checkbox"/> Spinosad (wheat only)
<b>Sampling Method</b>		
<b>Official Weight of Sample</b>		
<b>Sampling Location</b>		
<b>Date Sampled</b>		
<b>Date Sample Mailed to TSD</b>		