
European Commission
EURL
European Union Reference Laboratory for Pesticide Residues in Fruits & Vegetables
EUPT-FV-25
European Proficiency Test FV-25

Melon
(Galia)

Mandatory Target List

212 pesticides

One new compound introduced in 2023

- Acephate
- Acetamiprid
- Aclonifen
- Acrinathrin
- Aldicarb
- Aldicarb Sulfone
- Aldicarb Sulfoxide
- Aldrin
- Ametoctradin
- Azinphos-methyl
- Azoxystrobin
- Bifenthrin (sum of isomers)
- Biphenyl
- Bitertanol (sum of isomers)
- Boscalid
- Bromopropylate
- Bromuconazole (sum of diastereoisomers)
- Bupirimate
- Buprofezin
- Cadusafos
- Carbaryl
- Carbendazim
- Carbofuran
- Carbofuran-3-hydroxy
- Chlorantraniliprole
- Chlorfenapyr
- Chlorfenvinphos
- Chlorobenzilate
- Chlorothalonil
- Chlorpropham
- Chlorpyrifos
- Chlorpyrifos-methyl
- Clofentezine
- Clothianidin
- Cyantraniliprole
- Cyazofamid
- Cyflufenamid: sum of cyflufenamid (Z-isomer) and its E-isomer
- Cyfluthrin (cyfluthrin incl. other mixtures of constituent isomers (sum of isomers))
- Cymoxanil
- Cypermethrin (cypermethrin incl. other mixtures of constituent isomers (sum of isomers))
- Cyproconazole
- Cyprodinil
- Deltamethrin (cis-deltamethrin)
- Demeton-S-methylsulfone
- Diazinon
- Dichlofluanid
- Dichlorvos
- Dicloran
- Dicofol (sum of p, p´ and o,p´ isomers)
- Dieldrin
- Diethofencarb
- Difenoconazole
- Diflubenzuron
- Dimethoate
- Dimethomorph (sum of isomers)
- Dimethylaminosulfotoluidide (DMST)
- Diniconazole (sum of isomers)
- Diphenylamine
- Endosulfan alpha
- Endosulfan beta
- Endosulfan sulfate
- EPN
- Epoxiconazole
- Ethion
- Ethirimol
- Ethoprophos
- Etofenprox
- Etoxazole
- Famoxadone
- Fenamidone
- Fenamiphos
- Fenamiphos sulfone
- Fenamiphos sulfoxide
- Fenarimol
- Fenazaquin
- Fenbuconazole
- Fenhexamid
- Fenitrothion
- Fenoxycarb
- Fenpropathrin
- Fenpropidin
- Fenpropimorph (sum of isomers)
- Fenpyrazamine
- Fenpyroximate
- Fenthion
- Fenthion oxon
- Fenthion oxon sulfone
- Fenthion oxon sulfoxide
- Fenthion sulfone
- Fenthion sulfoxide
- Fenvalerate (any ratio of constituent isomers (RR, SS, RS & SR) including esfenvalerate)
- Fipronil
- Fipronil sulfone
- Flonicamid
- Flubendiamide
- Fludioxonil
- Flufenoxuron
- Fluopicolide
- Fluopyram
- Fluquinconazole

Mandatory Target List

212 pesticides

One new compound introduced in 2023

Flusilazole	Malaoxon	Malaoxon	Oxydemeton-methyl	Propamocarb (only parent compound)	Triadimenol (any proportion of constituent isomers)
Flutolanil	Flusilazole	Malathion	Paclobutrazole	Spiroxamine (sum of isomers)	Triazophos
Flutriafol	Flutolanil	Mandipropamid	Paraoxon-methyl	Sulfoxaflor (sum of isomers)	Trichlorfon
Fluxapyroxad	Flutriafol	Mepanipyrim	Parathion-ethyl	Tau-Fluvalinate	Tricyclazole
Formetanate	Fluxapyroxad	Metaflumizone (sum of E- and Z- isomers)	Parathion-methyl	Tebuconazole	Trifloxystrobin
Fosthiazate	Fosthiazate	Metalaxyl and metalaxyl-M	Penconazole	Tebufenozide	Triflumizole
Hexaconazole	Hexaconazole	Methamidophos	Pencycuron	Tebufenpyrad	Triflumizole metabolite (FM-6-1)
Hexythiazox	Hexythiazox	Methidathion	Pendimethalin	Teflubenzuron	Triflumuron
Imazalil	Imazalil	Methiocarb	Permethrin (sum of isomers)	Tefluthrin	Trifluralin
Imidacloprid	Imidacloprid	Methiocarb sulfone	Phenthoate	Terbuthylazine	Triticonazole
Indoxacarb (sum of indoxacarb and its R enantiomer)	Indoxacarb (sum of indoxacarb and its R enantiomer)	Methiocarb sulfoxide	Phosalone	Tetraconazole	Vinclozolin (only parent compound)
Iprodione	Iprodione	Methomyl	Phosmet	Tetradifon	Zoxamide
Iprovalicarb	Iprovalicarb	Methoxyfenozide	Phosmet oxon	Thiabendazole	
Isocarbophos	Isocarbophos	Metrafenone	Phoxim	Thiacloprid	
Isofenphos-methyl	Isofenphos-methyl	Monocrotophos	Pirimicarb	Thiamethoxam	
Isoprothiolane	Isoprothiolane	Myclobutanyl	Pirimicarb-desmethyl	Thiodicarb	
Kresoxim-methyl	Kresoxim-methyl	Omethoate	Pirimiphos-methyl	Thiophanate-methyl	
Lambda-Cyhalothrin	Lambda-Cyhalothrin	Orthophenylphenol (Free compound only)	Prochloraz (only parent compound)	Tolclofos-methyl	
Linuron	Linuron	Oxadixyl	Procymidone	Tolylfluanid	
Lufenuron (any proportion of constituent isomers)	Lufenuron (any proportion of constituent isomers)	Oxamyl	Profenofos	Triadimefon	

Voluntary Target List

48 pesticides

5 new voluntary compounds

Working Document SANCO/12745/2013

(Working document on pesticides to be considered for inclusion in the national control programmes to ensure compliance with maximum residue levels of pesticides residues in and on food of plant and animal origin)

Benalaxyl and benalaxyl-M
Benzovindiflupyr
Chlorfluazuron
Clomazone
Cyflumetofen
Cyhalofop-butyl
Dinotefuran
Diuron
Fenobucarb
Fenpicoxamid
Florpyrauxifen-benzyl
Fluensulfone
Flufenacet (only parent compound)
Flutianil
Forchlorfenuron
Flupyradifurone
Heptachlor
cis- Heptachlor epoxide
trans -Heptachlor epoxide
Isofetamid
Isopyrazam
Isoxaflutole
Isoxaflutole diketonitrile degradate
Mefentrifluconazole
Metaldehyde
Metconazole (sum of isomers)
Molinate
Novaluron
Oxadiargyl
Oxathiapiprolin
Oxyfluorfen
Penflufen
Pentachloro-aniline
Penthiopyrad
Phenmedipham
Picolinafen
Propaquizafop
Pyrethrins
Pyridate (only parent compound)
Pyriofenone
Quinalphos
Quinoclamine
Quintozene
Rotenone
Tetramethrin
Tolfenpyrad
Tri-allate
Tritosulfuron

Melons were cultivated at the University greenhouse in Almería

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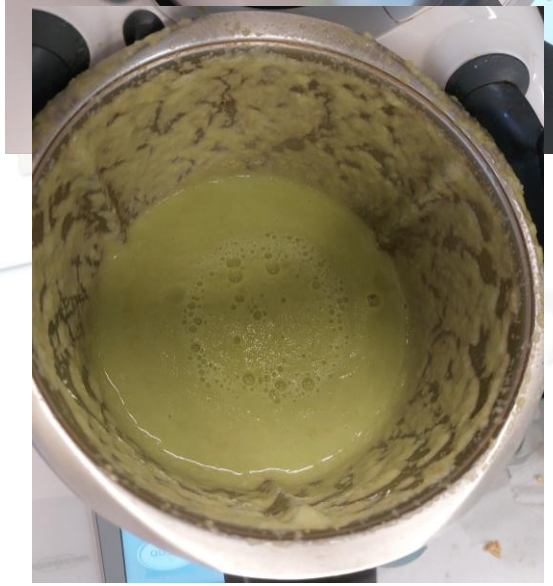
Before harvest melons were treated with comercial formulations

Cyazofamid
Difenoconazole
Fenitrothion
Imazalil
Pyriproxyfen
Thiamethoxam

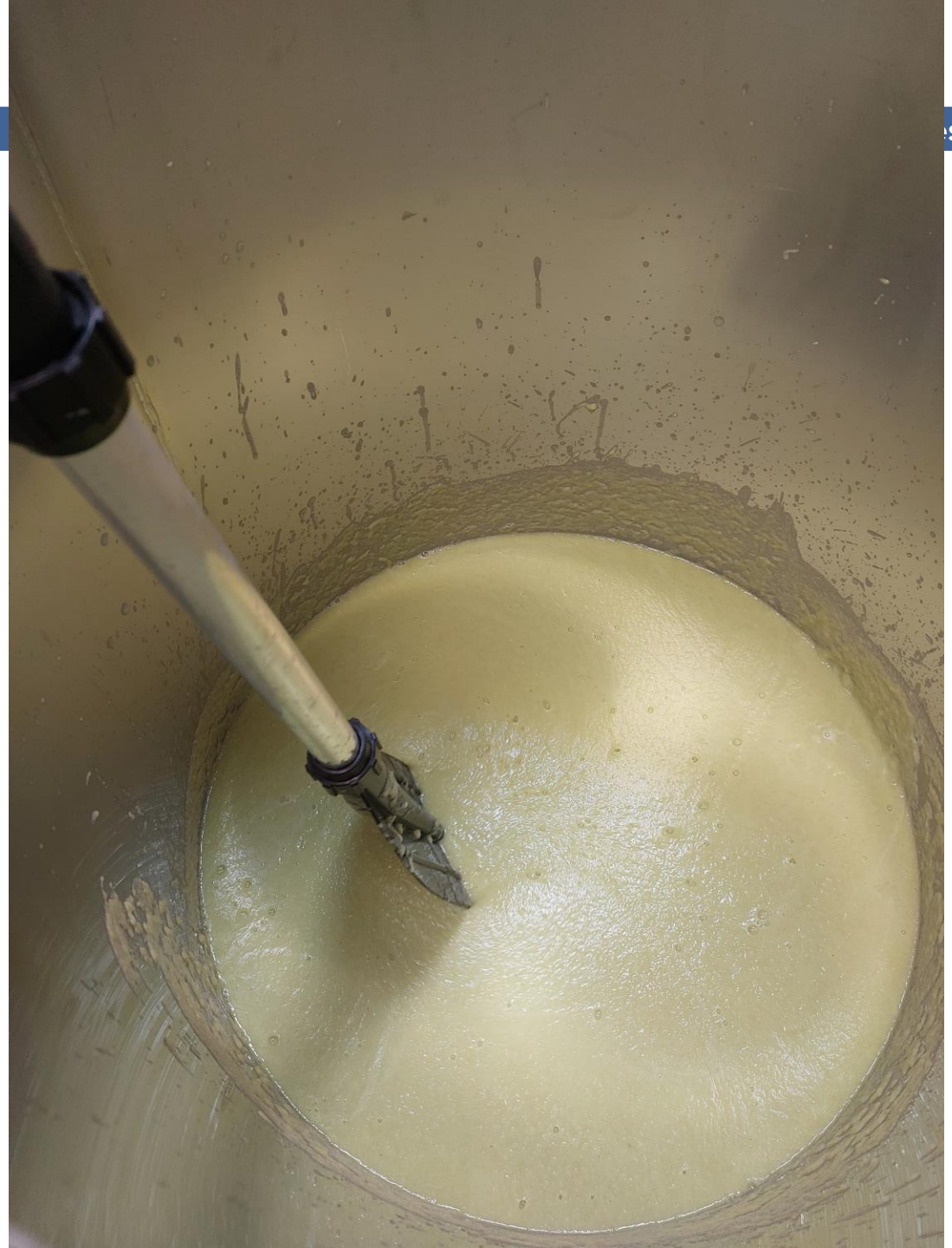
After harvest, melons were processed with dry ice



And the whole material was spiked with pesticide analytical standards

Chlorpyrifos-methyl	Mepanipyrim
Diazinon	Metrafenone
Ethirimol	Profenofos
Fenazaquin	Proquinazid
Flutriafol	Zoxamide
Mandipropamid	Novaluron

The melon puree was constantly mixed throughout the process



The material was packed in zip bags and frozen

The frozen blocks of melon puree were milled with an ice crusher

And the frozen milled test item was packed into PT bottles

Pesticides applied as analytical standards

Chlorpyrifos-methyl
Diazinon
Ethirimol
Fenazaquin
Flutriafol
Mandipropamid
Mepanipyrim
Metrafenone
Profenofos
Proquinazid
Zoxamide
Novaluron

12 pesticides

Pesticides applied as commercial formulations

Cyazofamid
Difenoconazole
Fenitrothion
Imazalil
Pyriproxyfen
Thiamethoxam

6 pesticides

Pesticides used for the treatment	
Chlorpyrifos-methyl	Mandipropamid
Cyazofamid	Mepanipyrim
Diazinon	Metrafenone
Difenoconazole	**Novaluron**
Ethirimol	Profenofos
Fenazaquin	Proquinazid
Fenitrothion	Pyriproxyfen
Flutriafol	Thiamethoxam
Imazalil	Zoxamide
TOTAL 18	

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Imazalil	Zoxamide
TOTAL 18	

→ **Clothianidin ~ 3 ppb**

Clorpyrifos 5 ppb

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Cyazofamid	Mepanipyrim
Diazinon	Metrafenone
Difenoconazole	**Novaluron**
Ethirimol	Profenofos
Fenazaquin	Proquinazid
Fenitrothion	Pyriproxyfen
Flutriafol	Thiamethoxam
Imazalil	Zoxamide
TOTAL 18	

Homogeneity

The homogeneity of the test item was studied using the 2006 Harmonised Protocol.

Homogeneity

Pesticide	Mean Conc. (mg/Kg)	Ss^2	c	Ss^2 < c Pass/Fail
Chlorpyrifosmethyl	0.090	1,565E-05	1,00E-04	Pass
Ciazofamid	0,081	2,800E-05	1,00E-04	Pass
Diazinon	0,108	2,845E-05	1,50E-04	Pass
Difenoconazol	0.266	1,199E-04	1,06E-03	Pass
Ethirimol	0.180	8,611E-06	3.50E-04	Pass
Fenazaquin	0.075	1,428E-05	7,00E-05	Pass
Fenitrothion	0,078	7,873E-06	9,00E-05	Pass
Flutriafol	0,319	5,445E-05	1,17E-03	Pass
Imazalil	0,113	7,313E-05	1,50E-04	Pass
Mandipropamid	0,524	6,302E-04	3,34E-03	Pass
Mepanipyrim	0,077	1,242E-05	8.00E-05	Pass
Metrafenone	0,613	0	7,19E-03	Pass
Novaluron*	0.089	4,695E-05	1,00E-04	Pass
Pyriproxyfen	0,245	1,408E-05	1,09E-03	Pass
Profenofos	0,121	1,960E-05	2,50E-04	Pass
Proquinazid	0,073	0	2,00E-04	Pass
Thiamethoxam	0,235	2,203E-05	5,90E-04	Pass
Zoxamide	0,580	1,008E-03	3,74E-03	Pass

Homogeneity

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Fenazaquin	0.075	1,428E-05	7,00E-05	Pass
Fenitrothion			9,00E-05	Pass
Flutriafol			1,17E-03	Pass
Imazalil			1,50E-04	Pass
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Thiamethoxam	0,235	2,203E-05	5,90E-04	Pass
Zoxamide	0,580	1,008E-03	3,74E-03	Pass

All the pesticides passed the homogeneity test

Stability

- *1st Analysis - prior to the sample shipment*
- *2nd Analysis - after the deadline for reporting results*
- *3rd Analysis - reproducing the delivery conditions that the samples experienced during **48 hours***
- *4th Analysis - reproducing the delivery conditions that the samples experienced during **72 hours***

Stability

- *1st Analysis - prior to the sample shipment*
- *2nd Analysis - after the deadline for reporting results*
- *3rd Analysis - repr* **All the pesticides passed the stability test** *he samples experienced dur*
- *4th Analysis - reproducing the delivery conditions that the samples experienced during **72 hours***

Stability

(mg/kg)	Day 1							Day 2								
	Sample 170_A	Sample 170_B	Sample 55_A	Sample 55_B	Sample 54_A	Sample 54_B	Mean 1	Sample 111_A	Sample 111_B	Sample 181_A	Sample 181_B	Sample 134_A	Sample 134_B	Mean 2	(M2 – M1)	M2-M1 ≤ 0.3*σ
Clorpirifos-metyl	0.089	0.089	0.09	0.096	0.094	0.087	0.091	0.091	0.092	0.087	0.076	0.088	0.086	0.087	-0.004	Pass
Ciazofamid	0.071	0.081	0.08	0.075	0.078	0.073	0.076	0.08	0.072	0.077	0.074	0.067	0.065	0.072	-0.004	Pass
Diazinon	0.105	0.099	0.1	0.111	0.12	0.111	0.108	0.112	0.109	0.111	0.121	0.107	0.09	0.108	0.001	Pass
Difenoconazole	0.193	0.224	0.221	0.222	0.212	0.215	0.215	0.234	0.24	0.245	0.266	0.187	0.18	0.225	0.011	Pass
Ethirimol	0.297	0.292	0.294	0.29	0.295	0.29	0.293	0.299	0.291	0.292	0.295	0.284	0.283	0.291	-0.002	Pass
Fenazaquin	0.07	0.071	0.071	0.075	0.072	0.068	0.071	0.073	0.073	0.069	0.06	0.069	0.069	0.069	-0.002	Pass
Fenitrothion	0.076	0.076	0.076	0.078	0.075	0.069	0.075	0.077	0.076	0.069	0.059	0.068	0.068	0.07	-0.005	Pass
Flutriafol	0.295	0.277	0.276	0.262	0.28	0.26	0.275	0.295	0.275	0.258	0.287	0.257	0.258	0.271	-0.004	Pass
Imazalil	0.085	0.084	0.09	0.082	0.089	0.085	0.086	0.087	0.088	0.081	0.083	0.073	0.071	0.081	-0.005	Pass
Mandipropamid	0.447	0.425	0.478	0.442	0.444	0.435	0.445	0.455	0.446	0.425	0.43	0.433	0.429	0.436	-0.009	Pass
Mepanipyrim	0.071	0.071	0.07	0.073	0.073	0.069	0.071	0.073	0.072	0.067	0.059	0.068	0.068	0.068	-0.003	Pass
Metrafenone	0.427	0.417	0.505	0.541	0.412	0.469	0.462	0.557	0.46	0.501	0.446	0.406	0.501	0.478	0.017	Pass
Pyriproxifen	0.261	0.288	0.283	0.286	0.277	0.273	0.278	0.273	0.295	0.297	0.292	0.258	0.24	0.276	-0.002	Pass
Profenofos	0.112	0.09	0.112	0.101	0.11	0.1	0.104	0.109	0.109	0.108	0.109	0.089	0.094	0.103	-0.001	Pass
Proquinazid	0.062	0.064	0.065	0.068	0.065	0.061	0.064	0.074	0.07	0.074	0.068	0.064	0.056	0.068	0.003	Pass
Thiamethoxam	0.239	0.227	0.222	0.207	0.231	0.226	0.225	0.238	0.222	0.223	0.234	0.228	0.218	0.227	0.002	Pass
Zoxamide	0.662	0.63	0.729	0.659	0.761	0.697	0.69	0.727	0.671	0.655	0.698	0.679	0.755	0.697	0.008	Pass
						Voluntary Pesticide										
Novaluron	0.082	0.084	0.086	0.085	0.093	0.092	0.087	0.093	0.08	0.092	0.092	0.079	0.089	0.088	0.001	Pass

Stability

(mg/kg)	Day 1							Day 3								
	Sample 170_A	Sample 170_B	Sample 55_A	Sample 55_B	Sample 54_A	Sample 54_B	Mean 1	Sample 25_A	Sample 25_B	Sample 22_A	Sample 22_B	Sample 18_A	Sample 18_B	Mean 2	(M2 – M1)	M2-M1 ≤ 0.3*σ
Clorpirifos-metyl	0.089	0.089	0.09	0.096	0.094	0.087	0.091	0.085	0.088	0.083	0.093	0.099	0.089	0.09	-0.001	Pass
Ciazofamid	0.071	0.081	0.08	0.075	0.078	0.073	0.076	0.07	0.076	0.077	0.073	0.067	0.068	0.072	-0.004	Pass
Diazinon	0.105	0.099	0.1	0.111	0.12	0.111	0.108	0.118	0.11	0.109	0.109	0.09	0.102	0.107	-0.001	Pass
Difenoconazole	0.193	0.224	0.221	0.222	0.212	0.215	0.215	0.227	0.229	0.238	0.264	0.207	0.217	0.23	0.016	Pass
Ethirimol	0.297	0.292	0.294	0.29	0.295	0.29	0.293	0.294	0.298	0.291	0.287	0.288	0.291	0.292	-0.001	Pass
Fenazaquin	0.07	0.071	0.071	0.075	0.072	0.068	0.071	0.069	0.069	0.067	0.072	0.078	0.07	0.071	-0.001	Pass
Fenitrothion	0.076	0.076	0.076	0.078	0.075	0.069	0.075	0.074	0.075	0.067	0.075	0.08	0.072	0.074	-0.001	Pass
Flutriafol	0.295	0.277	0.276	0.262	0.28	0.26	0.275	0.283	0.292	0.283	0.267	0.264	0.276	0.277	0.003	Pass
Imazalil	0.085	0.084	0.09	0.082	0.089	0.085	0.086	0.085	0.087	0.08	0.081	0.076	0.073	0.08	-0.005	Pass
Mandipropamid	0.447	0.425	0.478	0.442	0.444	0.435	0.445	0.432	0.427	0.499	0.449	0.435	0.416	0.443	-0.002	Pass
Mepanipyrim	0.071	0.071	0.07	0.073	0.073	0.069	0.071	0.07	0.067	0.068	0.072	0.076	0.069	0.07	-0.001	Pass
Metrafenone	0.427	0.417	0.505	0.541	0.412	0.469	0.462	0.493	0.527	0.521	0.454	0.535	0.478	0.501	0.039	Pass
Pyriproxifen	0.261	0.288	0.283	0.286	0.277	0.273	0.278	0.281	0.286	0.29	0.277	0.26	0.265	0.276	-0.001	Pass
Profenofos	0.112	0.09	0.112	0.101	0.11	0.1	0.104	0.097	0.108	0.107	0.094	0.089	0.097	0.099	-0.005	Pass
Proquinazid	0.062	0.064	0.065	0.068	0.065	0.061	0.064	0.068	0.066	0.065	0.062	0.061	0.057	0.063	-0.001	Pass
Thiamethoxam	0.239	0.227	0.222	0.207	0.231	0.226	0.225	0.221	0.24	0.225	0.214	0.228	0.221	0.225	0	Pass
Zoxamide	0.662	0.63	0.729	0.659	0.761	0.697	0.69	0.775	0.685	0.731	0.667	0.774	0.66	0.715	0.025	Pass
Voluntary Pesticides																
Novaluron	0.082	0.084	0.086	0.085	0.093	0.092	0.087	0.093	0.082	0.1	0.086	0.095	0.092	0.091	0.004	Pass

Stability

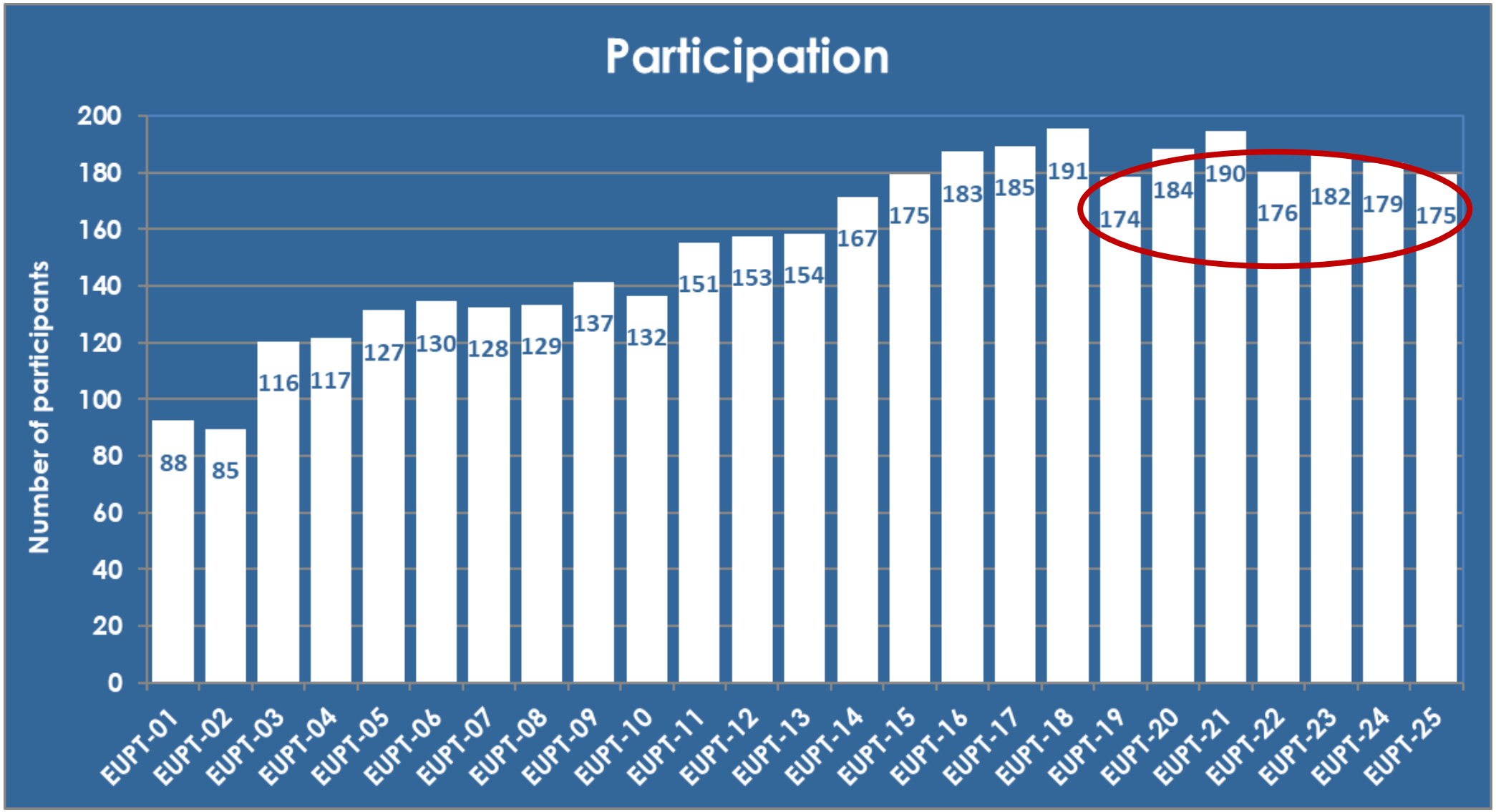
(mg/kg)	Day 1							Day 4								
	Sample 170_A	Sample 170_B	Sample 55_A	Sample 55_B	Sample 54_A	Sample 54_B	Mean 1	Sample 68_A	Sample 68_B	Sample 247_A	Sample 247_B	Sample 88_A	Sample 88_B	Mean 2	(M2 – M1)	M2-M1 ≤ 0.3*σ
Clorpirifos-metyl	0.089	0.089	0.09	0.096	0.094	0.087	0.091	0.097	0.089	0.081	0.083	0.102	0.099	0.092	0.001	Pass
Ciazofamid	0.071	0.081	0.08	0.075	0.078	0.073	0.076	0.085	0.076	0.076	0.07	0.078	0.072	0.076	0	Pass
Diazinon	0.105	0.099	0.1	0.111	0.12	0.111	0.108	0.114	0.11	0.112	0.098	0.123	0.108	0.111	0.003	Pass
Difenoconazole	0.193	0.224	0.221	0.222	0.212	0.215	0.215	0.21	0.229	0.194	0.188	0.219	0.235	0.212	-0.002	Pass
Ethirimol	0.297	0.292	0.294	0.29	0.295	0.29	0.293	0.297	0.296	0.289	0.274	0.299	0.292	0.291	-0.002	Pass
Fenazaquin	0.07	0.071	0.071	0.075	0.072	0.068	0.071	0.076	0.071	0.065	0.064	0.083	0.08	0.073	0.002	Pass
Fenitrothion	0.076	0.076	0.076	0.078	0.075	0.069	0.075	0.08	0.074	0.066	0.065	0.087	0.082	0.076	0.001	Pass
Flutriafol	0.295	0.277	0.276	0.262	0.28	0.26	0.275	0.296	0.29	0.279	0.246	0.289	0.286	0.281	0.006	Pass
Imazalil	0.085	0.084	0.09	0.082	0.089	0.085	0.086	0.09	0.09	0.086	0.086	0.084	0.087	0.087	0.002	Pass
Mandipropamid	0.447	0.425	0.478	0.442	0.444	0.435	0.445	0.468	0.471	0.453	0.462	0.508	0.487	0.475	0.03	Pass
Mepanipyrim	0.071	0.071	0.07	0.073	0.073	0.069	0.071	0.076	0.071	0.065	0.064	0.079	0.077	0.072	0.001	Pass
Metrafenone	0.427	0.417	0.505	0.541	0.412	0.469	0.462	0.468	0.471	0.395	0.412	0.542	0.532	0.47	0.008	Pass
Pyriproxifen	0.261	0.288	0.283	0.286	0.277	0.273	0.278	0.271	0.283	0.274	0.259	0.251	0.235	0.262	-0.016	Pass
Profenofos	0.112	0.09	0.112	0.101	0.11	0.1	0.104	0.1	0.111	0.107	0.098	0.109	0.099	0.104	0	Pass
Proquinazid	0.062	0.064	0.065	0.068	0.065	0.061	0.064	0.059	0.073	0.056	0.061	0.062	0.059	0.062	-0.003	Pass
Thiamethoxam	0.239	0.227	0.222	0.207	0.231	0.226	0.225	0.231	0.234	0.212	0.198	0.223	0.225	0.22	-0.005	Pass
Zoxamide	0.662	0.63	0.729	0.659	0.761	0.697	0.69	0.753	0.673	0.739	0.667	0.723	0.774	0.722	0.032	Pass
Voluntary Pesticides																
Novaluron	0.082	0.084	0.086	0.085	0.093	0.092	0.087	0.083	0.09	0.089	0.086	0.112	0.091	0.092	0.005	Pass

EUPT-FV25 CALENDAR

ACTIVITY	DATE
Registration period	1st January - 10th February 2023
Specific Protocol published on the Web site.	20st February 2023 at the latest
Selection of the scope	23th February – 6th March 2023
Sample distribution.	6th March 2023
Deadline for receiving sample acceptance	10th March 2023
Deadline for receiving results	3th April 2023
Filling in additional information, if necessary.	4th– 12th April 2023
Preliminary Report: (containing preliminary assigned values and z scores)	April 2023
Final Report distributed to the Laboratories.	August 2023

EUPT-FV25 CALENDAR

ACTIVITY	DATE
Registration period	1st January - 10th February 2023
Specific Protocol published on the Web site.	20st February 2023 at the latest
Selection of the scope	23th February – 6th March 2023
Sample distribution.	6th March 2023
Deadline for receiving sample acceptance	10th March 2023
Deadline for receiving results	3th April 2023
Filling in additional information, if necessary.	4th– 12th April 2023
Preliminary Report: (containing preliminary assigned values and z scores)	April 2023
Final Report distributed to the Laboratories.	August 2023


Participation
Number of participants
200
180
160
140
120
100
80
60
40
20
0
88
85
116
117
127
130
128
129
137
132
151
153
154
167
175
183
185
191
174
184
190
176
182
179
175
EUPT-01
EUPT-02
EUPT-03
EUPT-04
EUPT-05
EUPT-06
EUPT-07
EUPT-08
EUPT-09
EUPT-10
EUPT-11
EUPT-12
EUPT-13
EUPT-14
EUPT-15
EUPT-16
EUPT-17
EUPT-18
EUPT-19
EUPT-20
EUPT-21
EUPT-22
EUPT-23
EUPT-24
EUPT-25

Participation

Total No. of Labs = 175	Total No. of Countries = 40
EU/EFTA Labs = 157	EU/EFTA countries = 29
Other countries Labs = 18	Other countries = 11

Participation

Total No. of Labs = 175	Total No. of Countries = 40
EU/EFTA Labs = 157	EU/EFTA countries = 29
Other countries Labs = 18	Other countries = 11

11 participants did not submit results

1 non-EU/EFTA did not submit results

147 EU/EFTA Labs reporting results

Participation

Member State	No. Labs
Austria	1
Belgium	8
Bulgaria	5
Croatia	7
Cyprus	1
Czech Republic	2
Denmark	2
Estonia	1
Finland	3
France	8
Germany	23
Greece	3
Hungary	4
Iceland	1
Ireland	1

Member State	No. Labs
Italy	24
Latvia	1
Lithuania	2
Luxembourg	2
Malta	2
Norway	1
Poland	11
Portugal	4
Romania	6
Slovakia	1
Slovenia	1
Spain	31
Sweden	2
Switzerland	4
The Netherlands	2

Non-EU/EFTA	No. Labs
China	2
Costa Rica	1
Egypt	1
Kenya	1
Peru	2
Serbia	5
Singapore	1
Tanzania	1
Thailand	1
Turkey	1
United Kingdom	2

Participation

Member State	No. Labs
Austria	1
Belgium	8
Bulgaria	5
Croatia	7
Cyprus	1
Czech Republic	2
Denmark	2
Estonia	1
Finland	3
France	8
Germany	23
Greece	3
Hungary	4
Iceland	1
Ireland	1

Member State	No. Labs
Italy	24
Latvia	1
Lithuania	2
Luxembourg	2
Malta	2
Norway	1
Poland	11
Portugal	4
Romania	6
Slovakia	1
Slovenia	1
Spain	31
Sweden	2
Switzerland	4
The Netherlands	2

Non-EU/EFTA	No. Labs
China	2
Costa Rica	1
Egypt	1
Kenya	1
Peru	2
Serbia	5
Singapore	1
Tanzania	1
Thailand	1
Turkey	1
United Kingdom	2

Participation

Member State	No. Labs
Austria	1
Belgium	8
Bulgaria	5
Croatia	7
Cyprus	1
Czech Republic	2
Denmark	2
Estonia	1
Finland	3
France	8
Germany	23
Greece	3
Hungary	4
Iceland	1
Ireland	1

Member State	No. Labs
Italy	24
Latvia	1
Lithuania	2
Luxembourg	2
Malta	2
Norway	1
Poland	11
Portugal	4
Romania	6
Slovakia	1
Slovenia	1
Spain	31
Sweden	2
Switzerland	4
The Netherlands	2

Non-EU/EFTA	No. Labs
China	2
Costa Rica	1
Egypt	1
Kenya	1
Peru	2
Serbia	5
Singapore	1
Tanzania	1
Thailand	1
Turkey	1
United Kingdom	2

Results

Assigned values

Lab 191 reported all results in µg/kg

1 outlier was removed for all the evaluated compounds

except for novaluron for the calculation of the robust mean

Assigned values

Pesticides	Robust Mean X* (mg/kg)
Chlorpyrifos	0,005
Fenazaquin	0,078
Proquinazid	0,079
Mepanipyrim	0,081
Cyazofamid	0,083
Fenitrothion	0,085
Imazalil	0,086
Chlorpyrifos-methyl	0,090
Novaluron*	0,102
Diazinon	0,104
Profenofos	0,117
Thiamethoxam	0,208
Difenoconazole	0,222
Pyriproxyfen	0,245
Flutriafol	0,304
Ethirimol	0,388
Mandipropamid	0,451
Zoxamide	0,457
Metrafenone	0,562

*Voluntary Pesticide

Assigned values

AV = MRRL

Pesticides	Robust Mean X* (mg/kg)
Chlorpyrifos	0,005
Fenazaquin	0,078
Proquinazid	0,079
Mepanipyrim	0,081
Cyazofamid	0,083
Fenitrothion	0,085
Imazalil	0,086
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Mandipropamid	0,451
Zoxamide	0,457
Metrafenone	0,562

⇨ Informative purposes

*Voluntary Pesticide

Assigned values

< 0,1 mg/kg

Pesticides	Robust Mean X* (mg/kg)
Chlorpyrifos	0,005
Fenazaquin	0,078
Proquinazid	0,079
Mepanipyrim	0,081
Cyazofamid	0,083
Fenitrothion	0,085
Imazalil	0,086
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Flutriafol	0,304
Ethirimol	0,388
Mandipropamid	0,451
Zoxamide	0,457
Metrafenone	0,562

*Voluntary Pesticide

Assigned values

< 0,1 mg/kg

0,1- 0,5 mg/kg

Pesticides	Robust Mean X* (mg/kg)
Chlorpyrifos	0,005
Fenazaquin	0,078
Proquinazid	0,079
Mepanipyrim	0,081
Cyazofamid	0,083
Fenitrothion	0,085
Imazalil	0,086
Chlorpyrifos-methyl	0,090
Novaluron*	0,102
Diazinon	0,104
Profenofos	0,117
Thiamethoxam	0,208
Difenoconazole	0,222
Pyriproxyfen	0,245
Flutriafol	0,304
Ethirimol	0,388
Mandipropamid	0,451
Zoxamide	0,457
Metrafenone	0,562

*Voluntary Pesticide

Assigned values

< 0,1 mg/kg

0,1- 0,5 mg/kg

> 0,5 mg/kg

Pesticides	Robust Mean X* (mg/kg)
Chlorpyrifos	0,005
Fenazaquin	0,078
Proquinazid	0,079
Mepanipyrim	0,081
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Flutriafol	0,304
Ethirimol	0,388
Mandipropamid	0,451
Zoxamide	0,457
Metrafenone	0,562

*Voluntary Pesticide

	MRRL (mg/kg)	Robust Mean (mg/kg)	CV (%)	Uncertainty (mg/kg)
Chlorpyrifos ⓘ	0,005	0,005	22,2	0,0002
Chlorpyrifos-methyl	0,005	0,090	19,6	0,0018
Cyazofamid	0,010	0,083	15,8	0,0014
Diazinon	0,005	0,104	14,8	0,0016
Difenoconazole	0,010	0,222	17,6	0,0041
Ethirimol	0,010	0,388	21,4	0,0091
Fenazaquin	0,010	0,078	15,4	0,0013
Fenitrothion	0,010	0,085	20,8	0,0019
Flutriafol	0,010	0,304	13,8	0,0044
Imazalil	0,005	0,086	22,2	0,0020
Mandipropamid	0,010	0,451	17,3	0,0083
Mepanipyrim	0,010	0,081	13,0	0,0011
Metrafenone	0,010	0,562	15,9	0,0098
Novaluron*	0,010	0,102	18,3	0,0029
Profenofos	0,010	0,117	14,9	0,0018
Proquinazid	0,010	0,079	13,2	0,0012
Pyriproxyfen	0,010	0,245	17,1	0,0044
Thiamethoxam	0,010	0,208	13,8	0,0030
Zoxamide	0,010	0,457	14,3	0,0071

ⓘ For informative purposes

*Voluntary Pesticides

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ⓘ For informative purposes

*Voluntary Pesticides

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*Voluntary Pesticides

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Flutriafol	0,010	0,304	13,8	0,0044
Ima			22,2	0,0020
Mar			17,3	0,0083
Mep			13,0	0,0011
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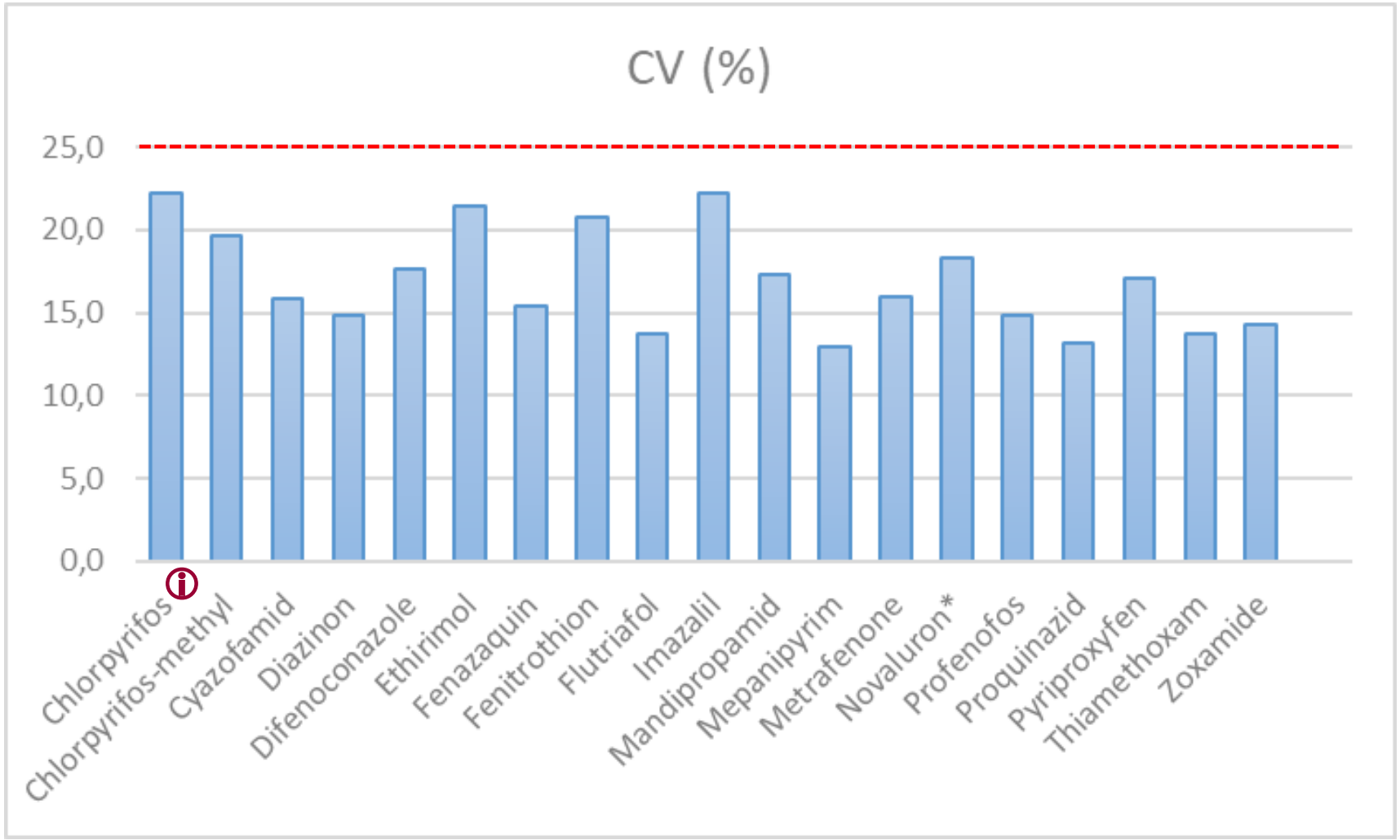
Thiamethoxam	0,010	0,208	13,8	0,0030
Zoxamide	0,010	0,457	14,3	0,0071

Average CV(%): 16,9 %
(including informative)

ⓘ For informative purposes

*Voluntary Pesticides

Dispersion of Results



Average 16,9 %
Min. 13.0 %
Max. 22.2%

ⓘ For informative purposes

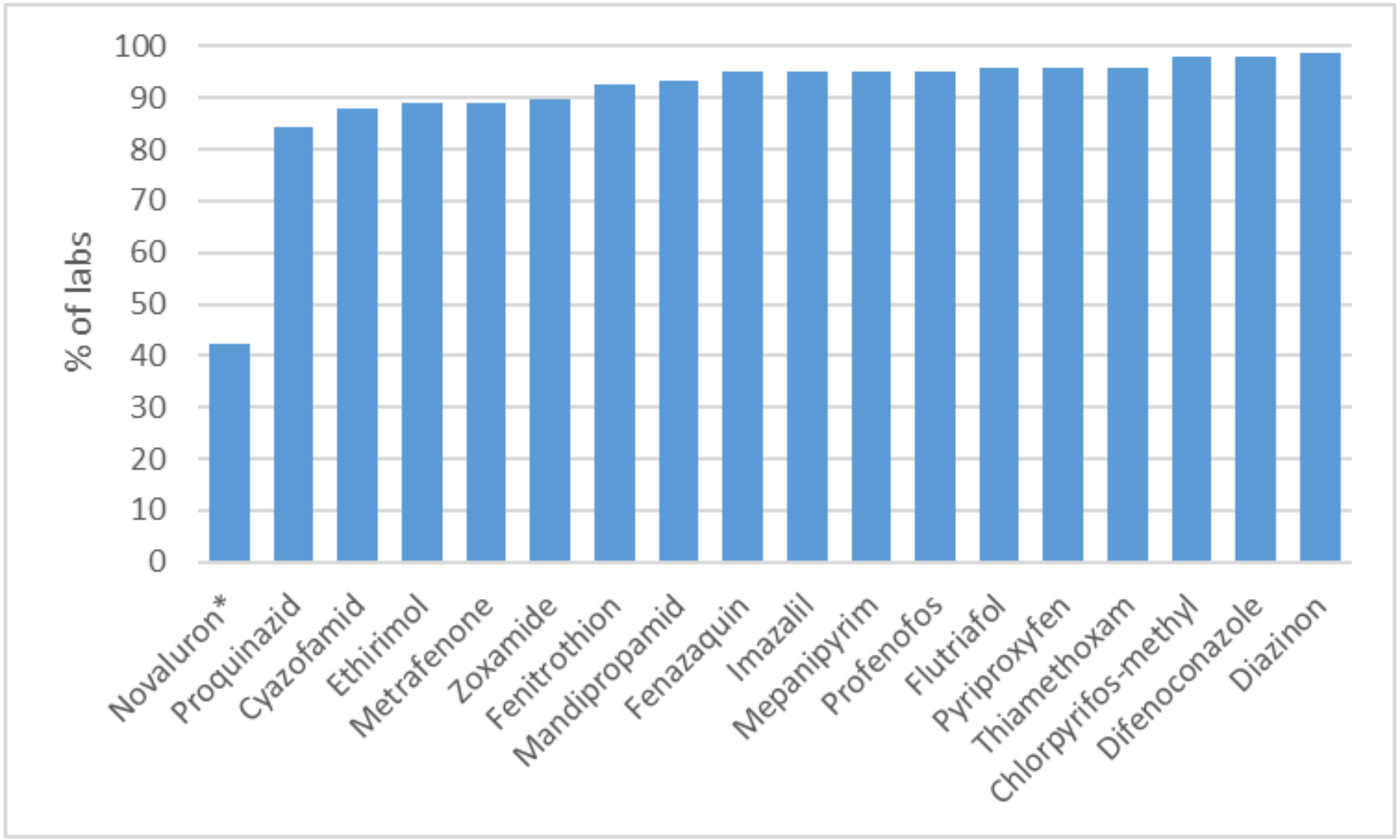
*Voluntary Pesticides

	No. of Reported Results	No. of False Negative Results	No. of Not Analysed Results	Percentage of Labs Reporting Results (out of 147)
Chlorpyrifos ⓘ	38	109 NR	0	26
Chlorpyrifos-methyl	144	2	1	98
Cyazofamid	129	8	10	88
Diazinon	145	2	0	99
Difenoconazole	144	2	1	98
Ethirimol	131	8	8	89
Fenazaquin	140	4	3	95
Fenitrothion	136	8	3	93
Flutriafol	141	4	2	96
Imazalil	140	6	1	95
Mandipropamid	137	7	3	93
Mepanipyrim	140	3	4	95
Metrafenone	131	8	8	89
Novaluron*	62	2	83	42
Profenofos	140	5	2	95
Proquinazid	124	10	13	84
Pyriproxyfen	141	3	3	96
Thiamethoxam	141	4	2	96
Zoxamide	132	9	6	90

ⓘ For informative purposes

*Voluntary Pesticides

% of Laboratories reporting each compund



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ⓘ For informative purposes

*Voluntary Pesticides

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Thiamethoxam	141	4	2	96
Zoxamide	132	9	6	90

ⓘ For informative purposes

*Voluntary Pesticides

False Negatives

29 labs

111 False negatives

LabCode	Chlorpyrifos-methyl	Cyazofamid	Diazinon	Difenoconazole	Ethirimol	Fenazaquin	Fenitrothion	Flutriafol	Imazalil	Mandipropamid	Mepanipyrim	Metrafenone	Novaluron	Profenofos	Proquinazid	Pyriproxyfen	Thiamethoxam	Zoxamide	Total
22													1						1
37																	1		1
46									1										1
47							1												1
49	1						1												2
53							1												1
54													1						1
59							1												1
77						1													1
89								1											1
118												1							1
147							1					1		1	1				4
157		1			1					1									3
159					1							1						1	3
173		1													1				2
179		1							1	1					1	1			5
181		1	1	1	1	1			1	1	1			1		1	1	1	12
185						1													1
187															1				1
193		1			1			1		1	1	1			1		1	1	9
195		1			1					1		1			1			1	6
203		1	1	1	1	1			1	1	1	1		1	1		1	1	13
207		1													1				2
211		1			1				1			1			1			1	6
213	1						1							1					3
215							1								1			1	3
221									1						1			1	3
225					1			1		1		1		1	1			1	7
231		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	16

False Negatives

LabCode	Chlorpyrifos-methyl	Cyazofamid	Diazinon	Difenoconazole	Ethirimol	Fenazaquin	Fenitrothion	Flutriafol	Imazalil	Mandipropamid	Mepanipyrim	Metrafenone	Novaluron	Profenofos	Proquinazid	Pyriproxyfen	Thiamethoxam	Zoxamide	Total
22													1						1
37																	1		1
46									1										1
47							1												1
49	1						1												2
53							1												1
54													1						1
59							1												1
77						1													1
89								1											1
118												1							1
147							1					1		1	1				4
157		1			1					1									3
159					1							1						1	3
173		1													1				2
179		1							1	1					1	1			5
181		1	1	1	1	1			1	1	1			1		1	1	1	12
185						1													1
187															1				1
193		1			1			1		1	1	1			1		1	1	9
195		1			1					1		1			1			1	6
203		1	1	1	1	1			1	1	1	1		1	1		1	1	13
207		1													1				2
211		1			1				1			1			1			1	6
213	1						1							1					3
215							1								1			1	3
221									1						1			1	3
225					1			1		1		1		1	1			1	7
231		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	16

Did not select their scope

False Positives

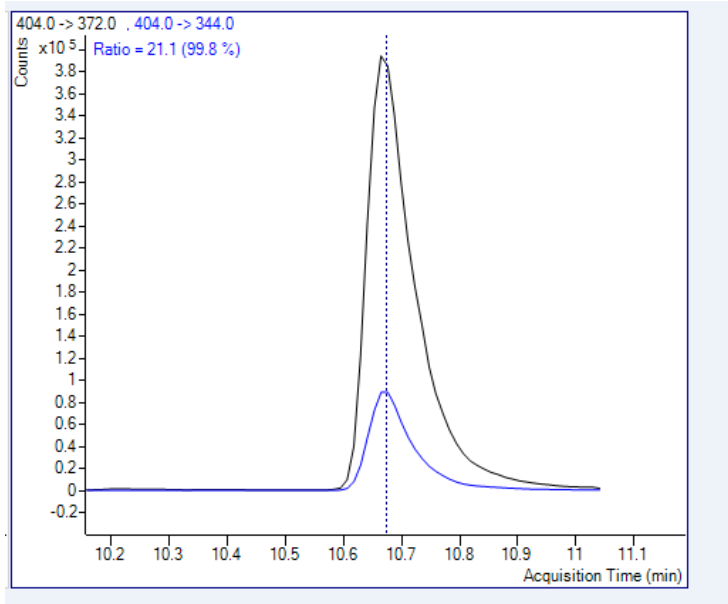
7 EU/EFTA laboratories reported **8 mandatory** pesticides as false positives

Lab Code	Pesticide	Reporting level (mg/kg)	Concentration (mg/kg)	Determination technique
37	Azoxystrobin	0.01	0,247	LC-MS/MS QQQ
94	Cyproconazole	0.01	0,236	LC - MS/MS
32	Dichlofluanid	0.01	0,151	GC-Q-Orbitrap
37	Lufenuron	0.01	0,074	LC-MS/MS QQQ
159	Myclobutanil	0.01	0,04	LC-MS/MS QQQ
153	Parathion-methyl	0.01	0,043	GC-MS/MS (QQQ)
19	Pyrethrin (sum)	0.01	0,0648	GC-MS/MS (QQQ)
207	Teflubenzuron	0.01	0,147	GC-MS/MS (QQQ)

Labs from non EU/EFTA countries did not report False Positives

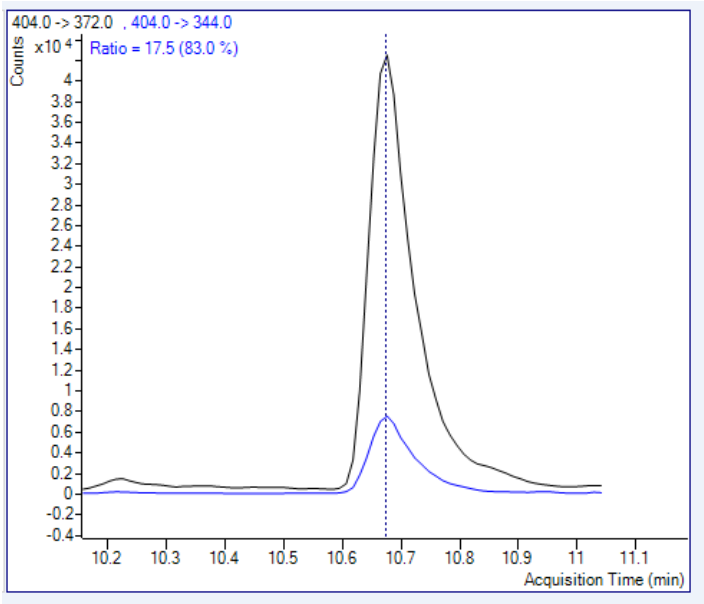
Azoxystrobin

Azoxystrobin standard in melon matrix 10 µg/Kg



Response:
2317680

EUPT-FV25 Sample



Response:
232986

False Positives

3 EU/EFTA laboratories reported
3 mandatory pesticides as false positives
but at concentrations < MRRL

Lab Code	Pesticide	Reporting level (mg/kg)	Concentration (mg/kg)	Determination technique
98	Azoxystrobin	0.01	0.001	LC - MS/MS
195	Chlorothalonil	0.01	0.004	GC-MS/MS (QQQ)
221	Fenoxycarb	0.01	0.002	LC-MS/MS QQQ

Those results have not been considered as False Positives, according to the GP

z scores

z scores classification

	Robust Mean (mg/kg)	% Acceptable z scores	% Questionable z scores	% Unacceptable z scores
Chlorpyrifos ⓘ	0,005	86,8	0,0	13,2
Chlorpyrifosmethyl	0,090	93,2	4,8	2,1
Cyazofamid	0,083	88,3	2,9	8,8
Diazinon	0,104	95,2	2,0	2,7
Difenoconazole	0,222	94,5	2,7	2,7
Ethirimol	0,388	89,2	2,2	8,6
Fenazaquin	0,078	95,8	0,0	4,2
Fenitrothion	0,085	87,5	3,5	9,0
Flutriafol	0,304	91,0	3,4	5,5
Imazalil	0,086	92,5	0,7	6,8
Mandipropamid	0,451	91,0	2,1	6,9
Mepanipyrim	0,081	97,2	0,0	2,8
Metrafenone	0,562	91,4	0,7	7,9
Novaluron*	0,102	92,2	4,7	3,1
Profenofos	0,117	91,7	2,1	6,2
Proquinazid	0,079	88,1	3,0	9,0
Pyriproxyfen	0,245	94,4	2,8	2,8
Thiamethoxam	0,208	93,1	2,8	4,1
Zoxamide	0,457	88,7	1,4	9,9

ⓘ For informative purposes

*Voluntary Pesticides

z scores classification

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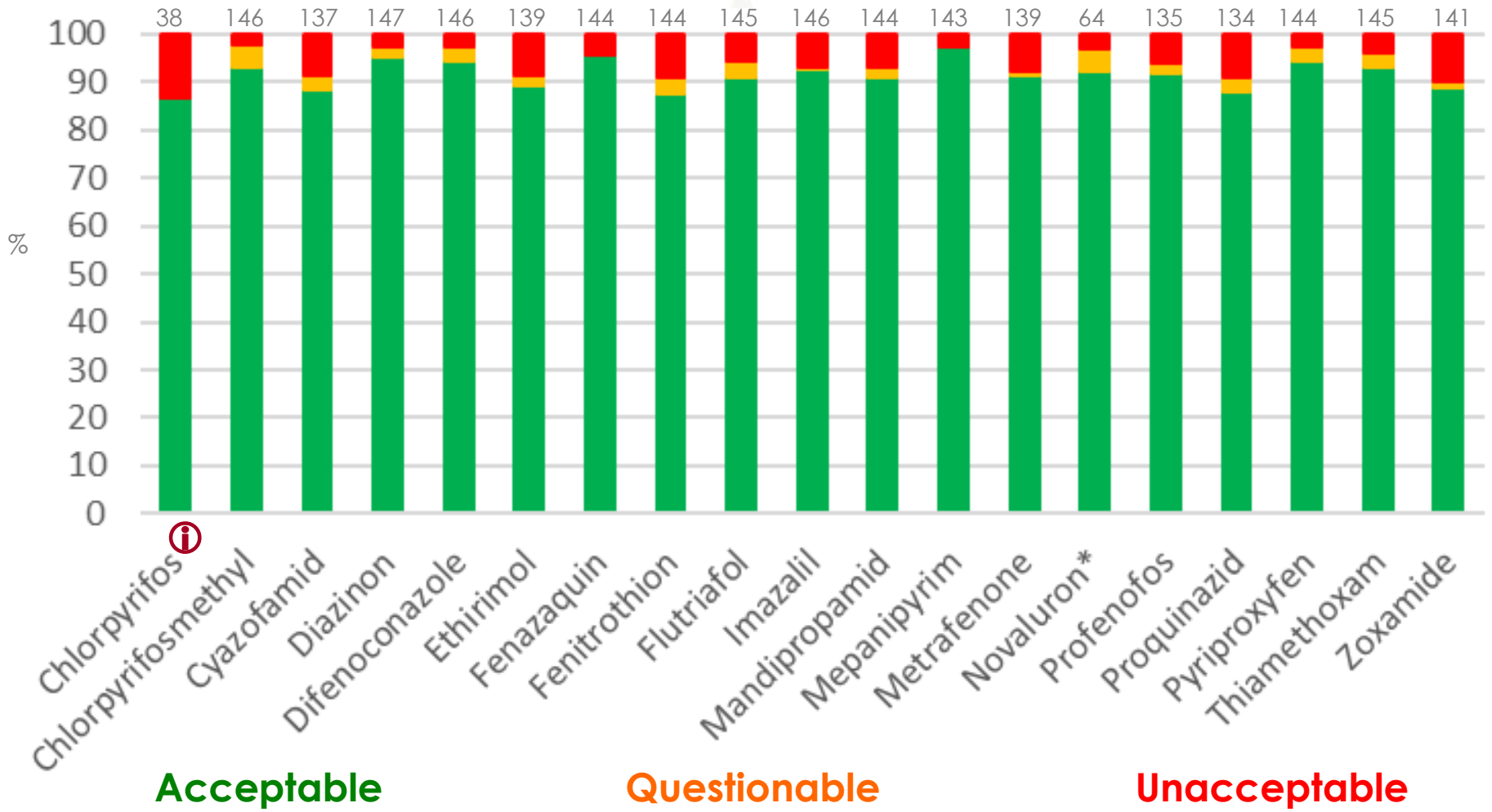
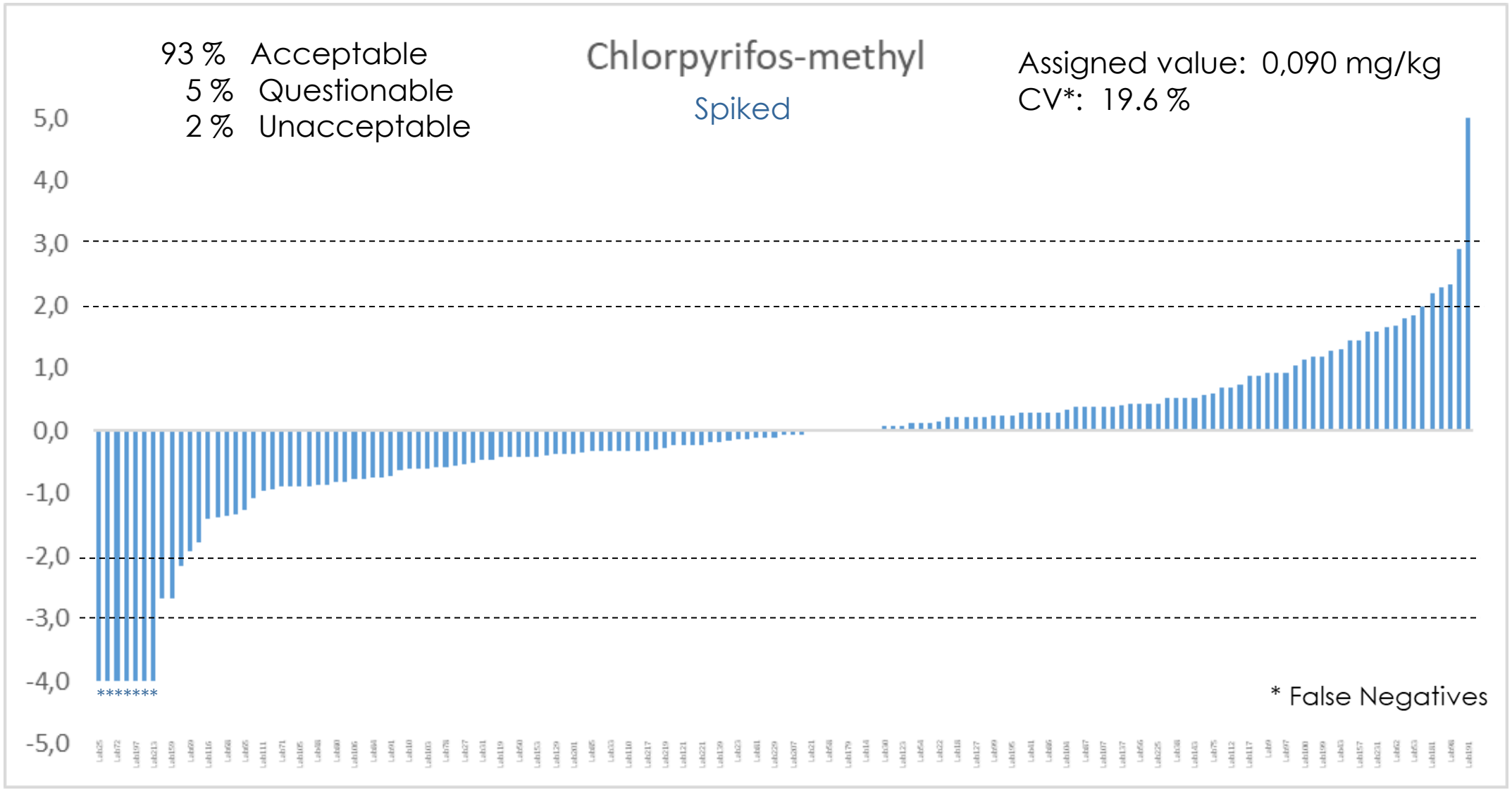
ⓘ For informative purposes

*Voluntary Pesticides

EU/EFTA Laboratories

z scores classification



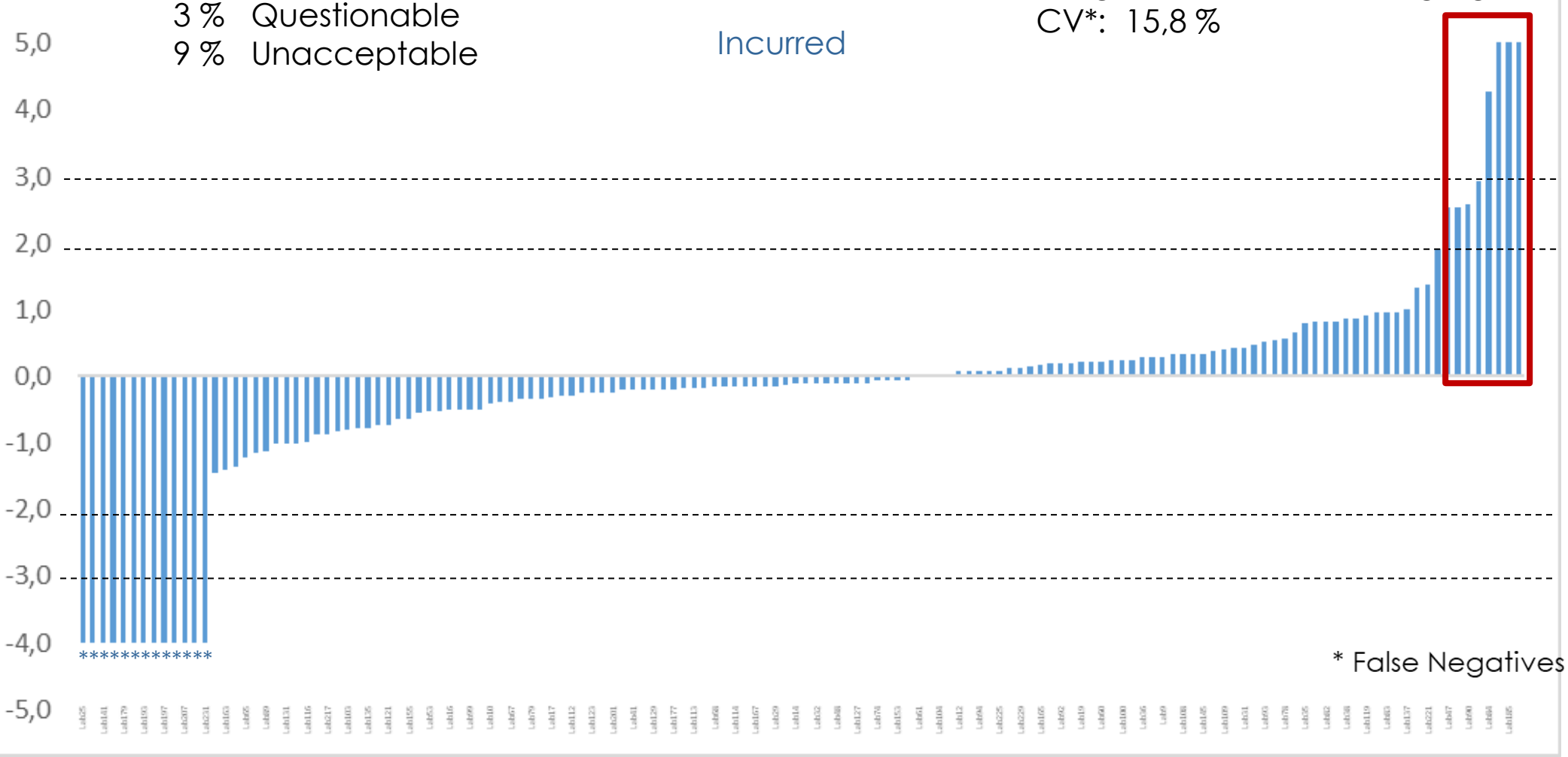

93 % Acceptable
5 % Questionable
2 % Unacceptable
Chlorpyrifos-methyl
Spiked
Assigned value: 0,090 mg/kg
CV*: 19.6 %
5,0
4,0
3,0
2,0
1,0
0,0
-1,0
-2,0
-3,0
-4,0
-5,0
****
* False Negatives

88 % Acceptable
3 % Questionable
9 % Unacceptable

Cyazofamid

Incurred

Assigned value: 0,083 mg/kg
CV*: 15,8 %

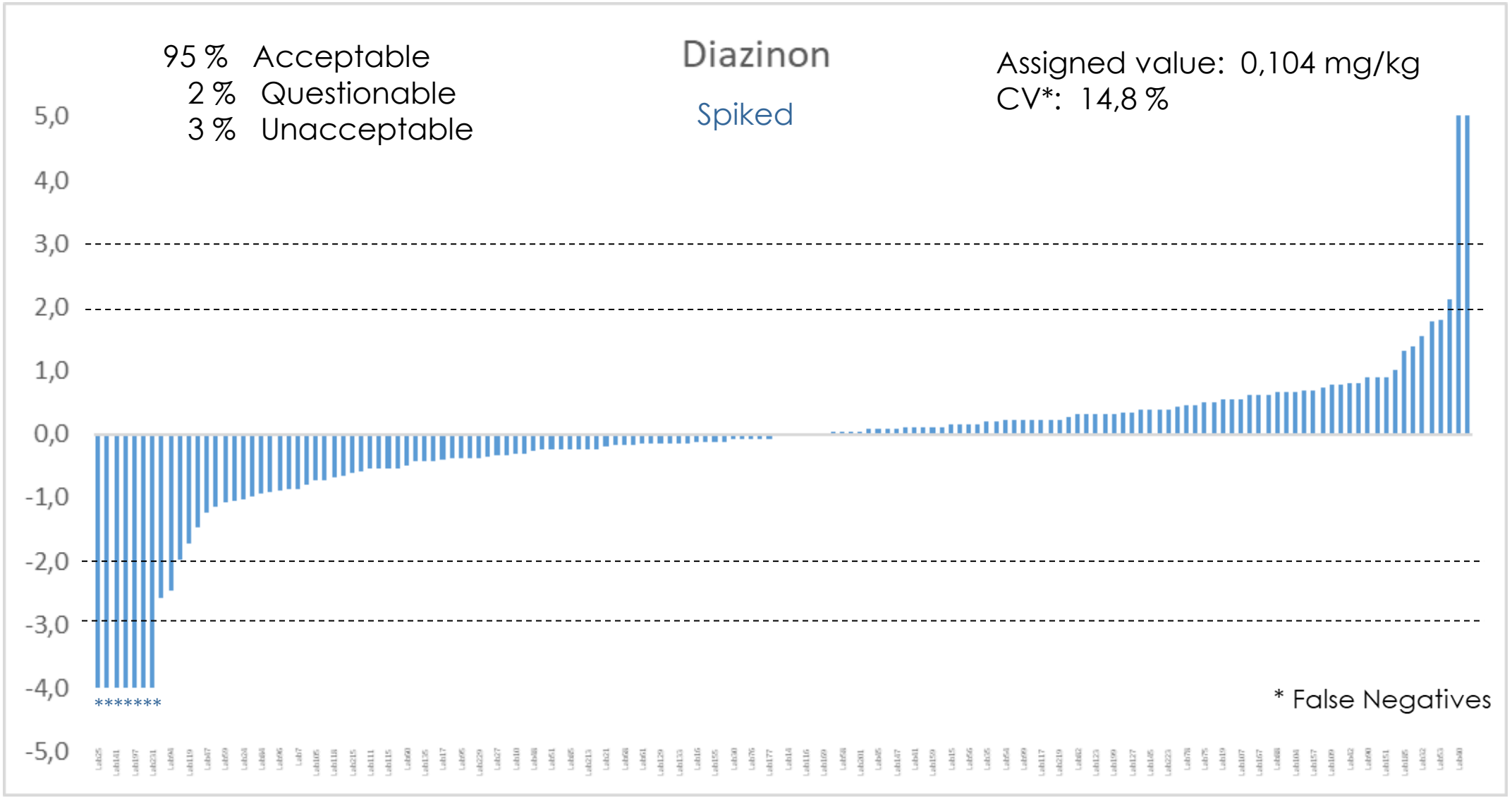


95 % Acceptable
2 % Questionable
3 % Unacceptable

Diazinon

Spiked

Assigned value: 0,104 mg/kg
CV*: 14,8 %

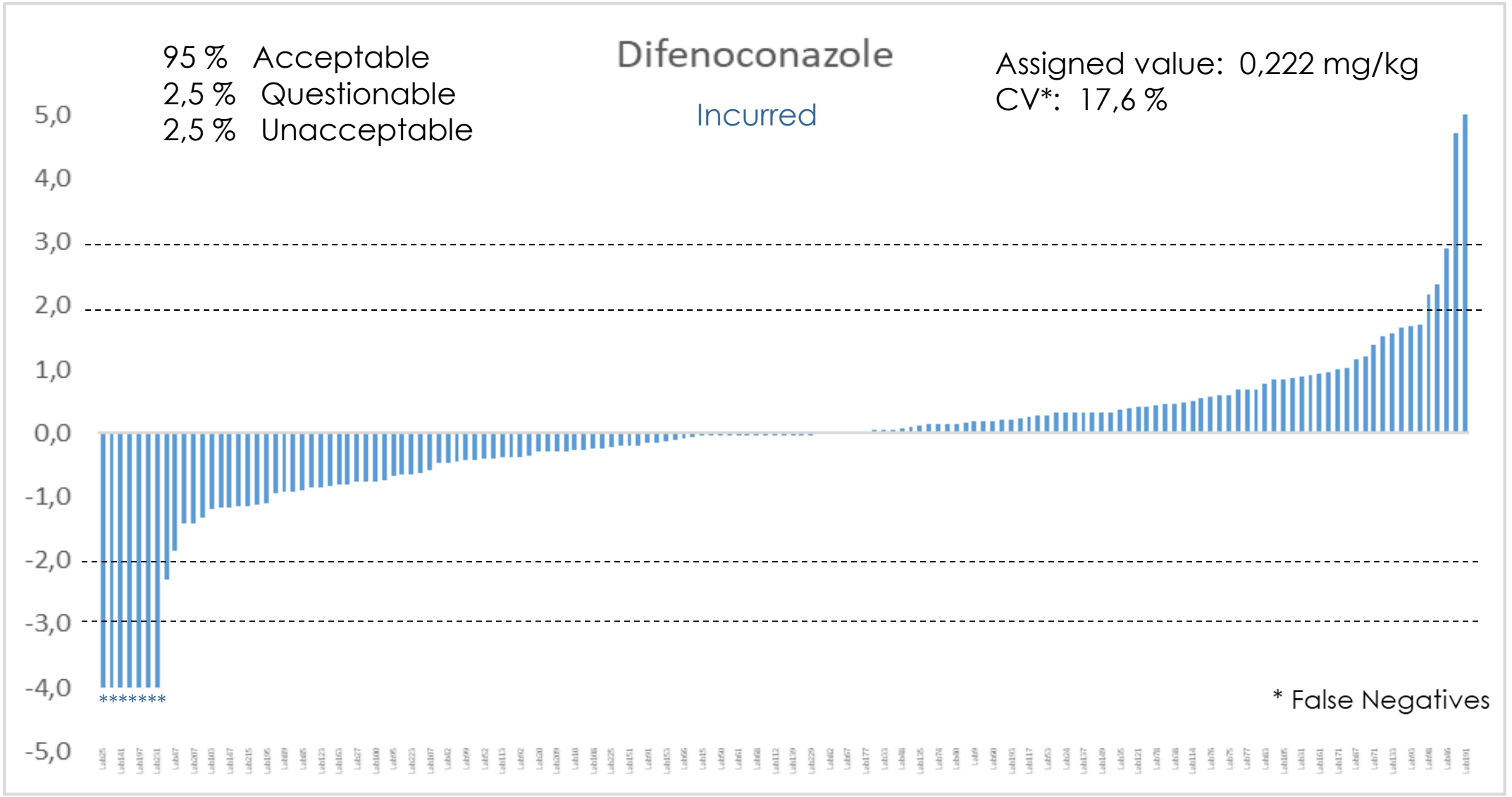


95 % Acceptable
2,5 % Questionable
2,5 % Unacceptable

Difenoconazole

Incurred

Assigned value: 0,222 mg/kg
CV*: 17,6 %

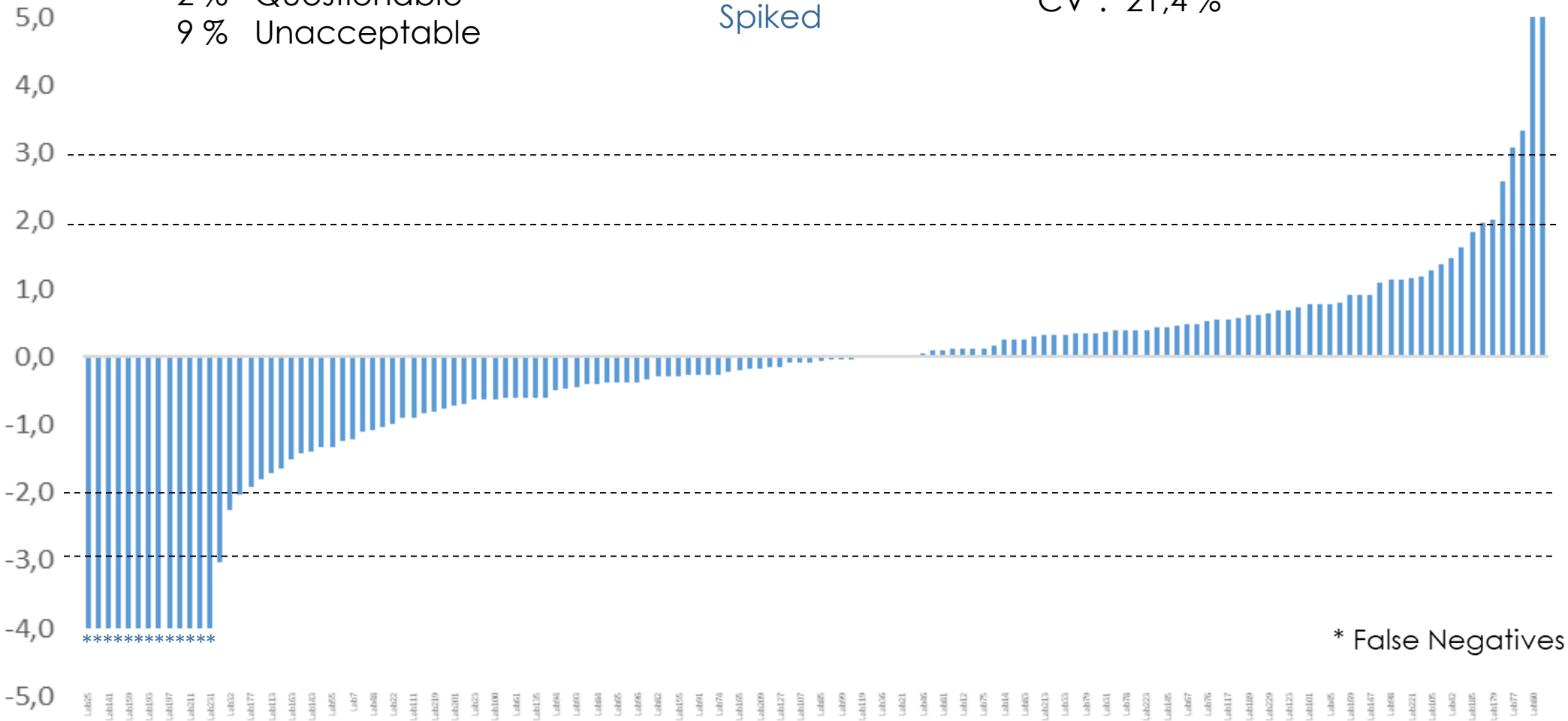


89 % Acceptable
2 % Questionable
9 % Unacceptable

Ethirimol

Spiked

Assigned value: 0,388 mg/kg
CV*: 21,4 %

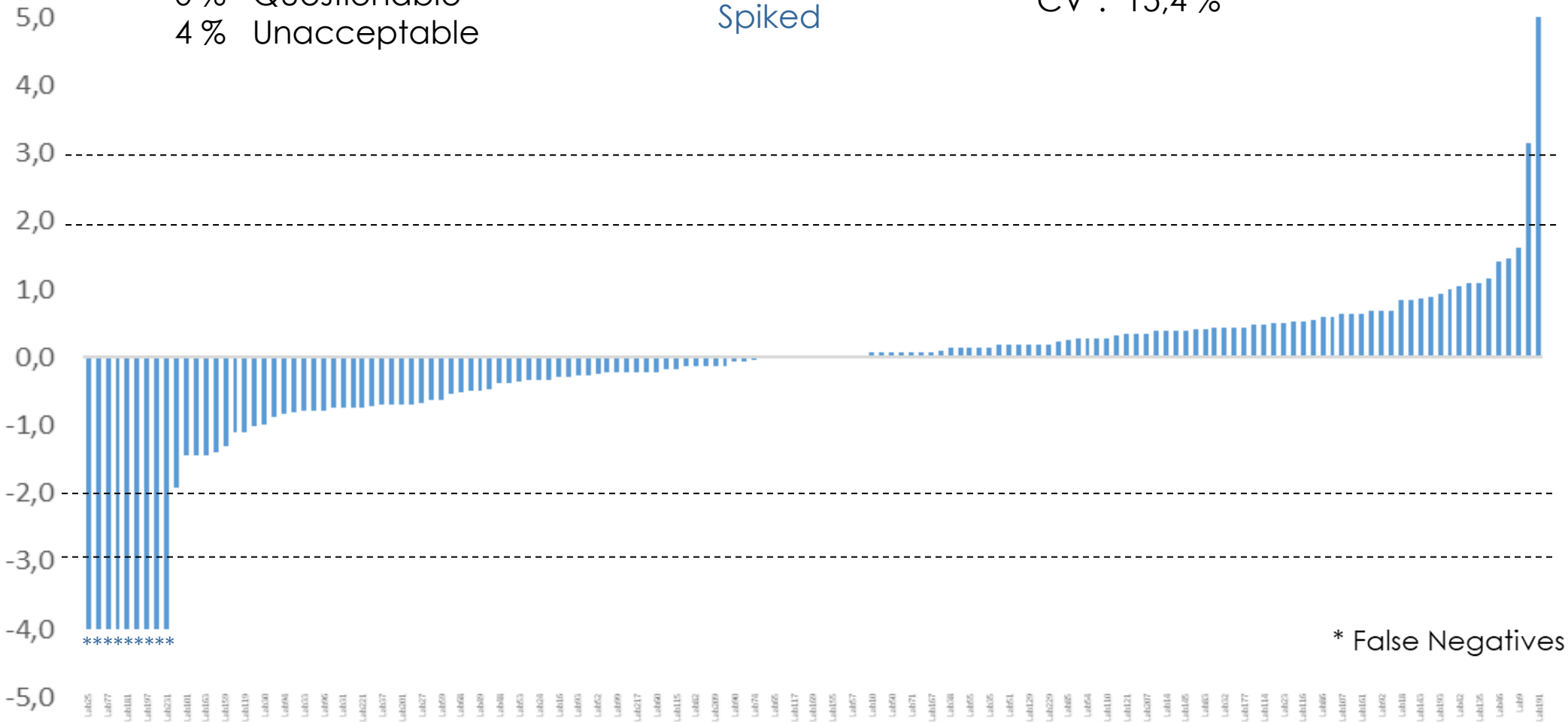


96 % Acceptable
0 % Questionable
4 % Unacceptable

Fenazaquin

Spiked

Assigned value: 0,078 mg/kg
CV*: 15,4 %

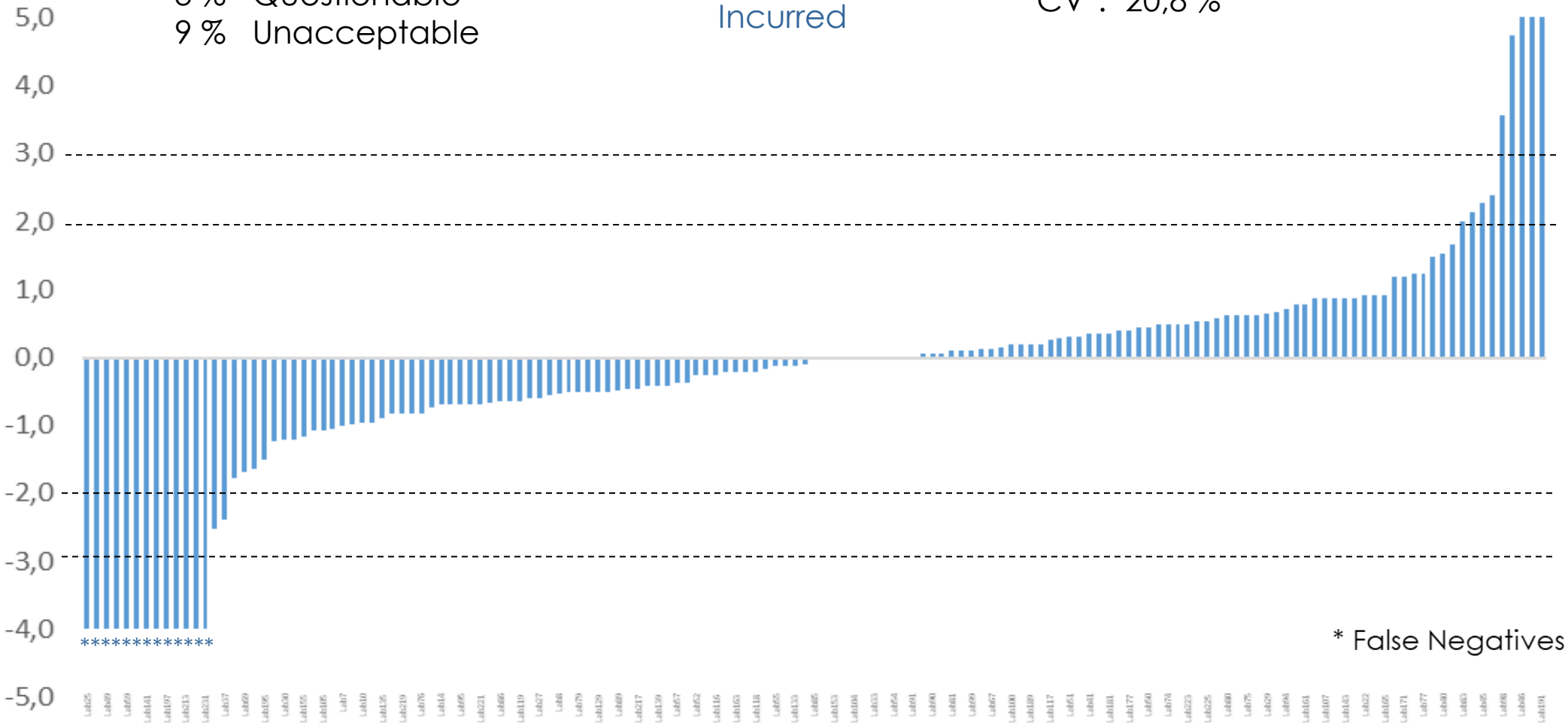


88 % Acceptable
3 % Questionable
9 % Unacceptable

Fenitrothion

Incurred

Assigned value: 0,085 mg/kg
CV*: 20,8 %

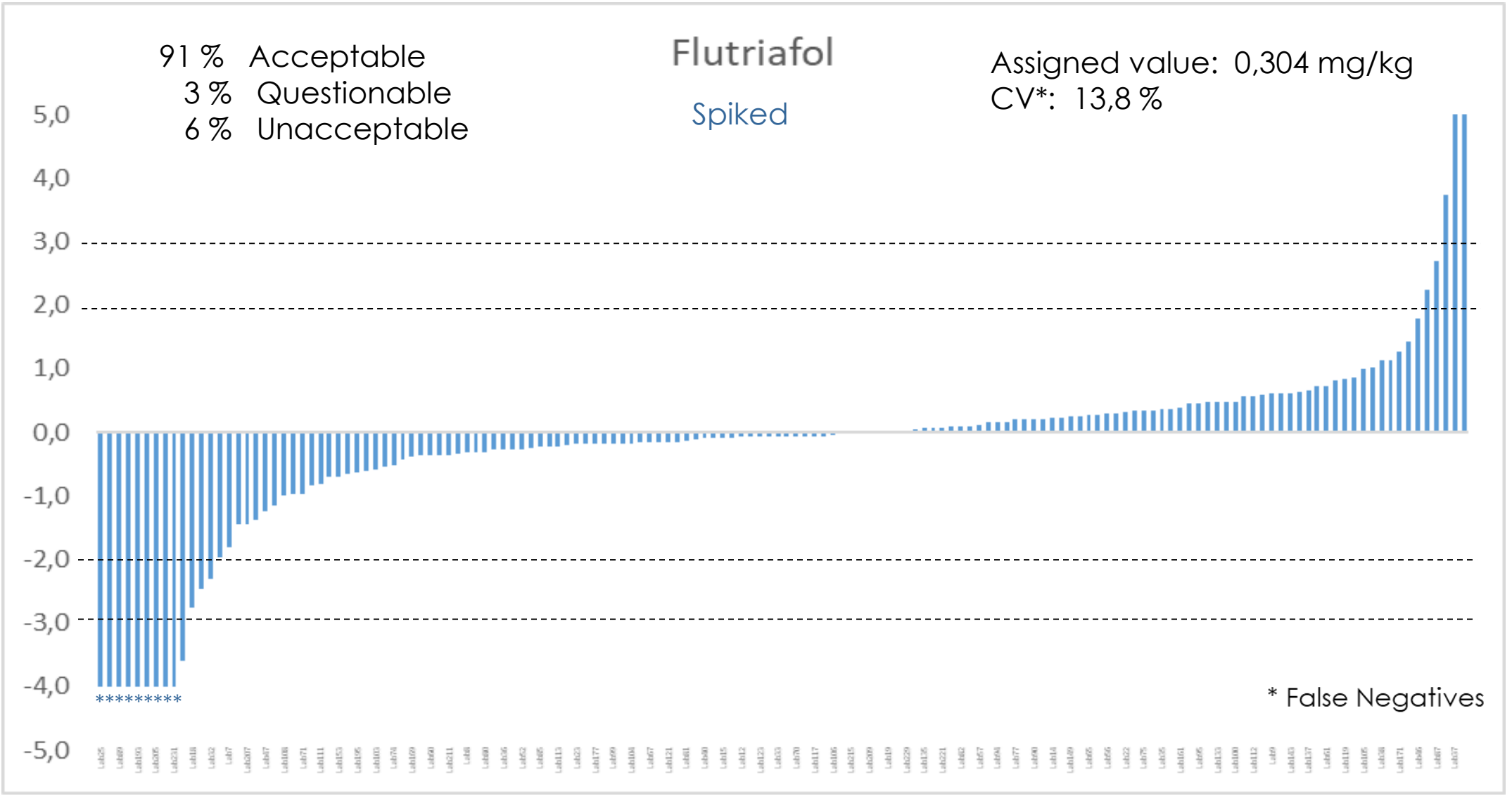


91 % Acceptable
3 % Questionable
6 % Unacceptable

Flutriafol

Spiked

Assigned value: 0,304 mg/kg
CV*: 13,8 %

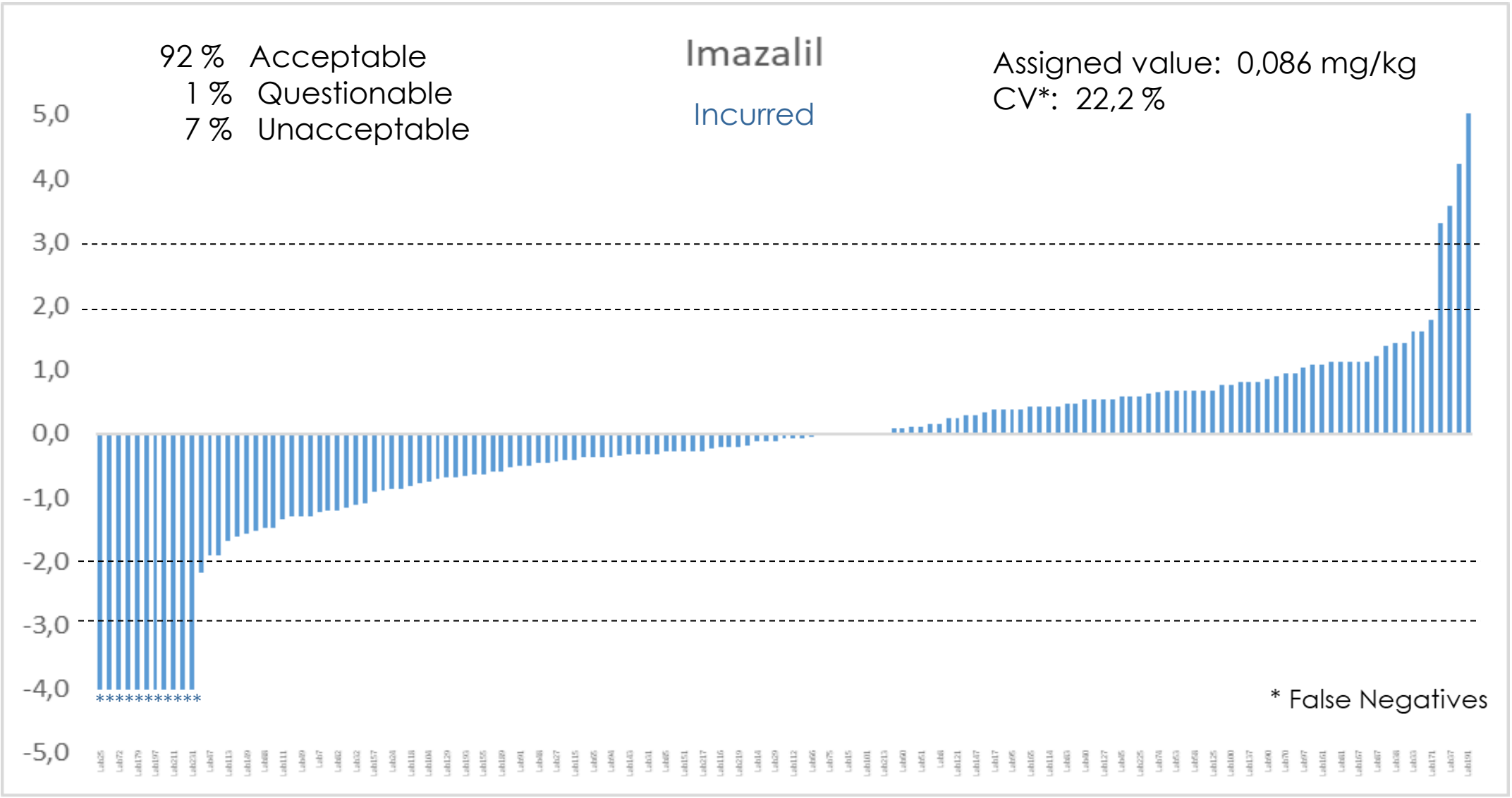


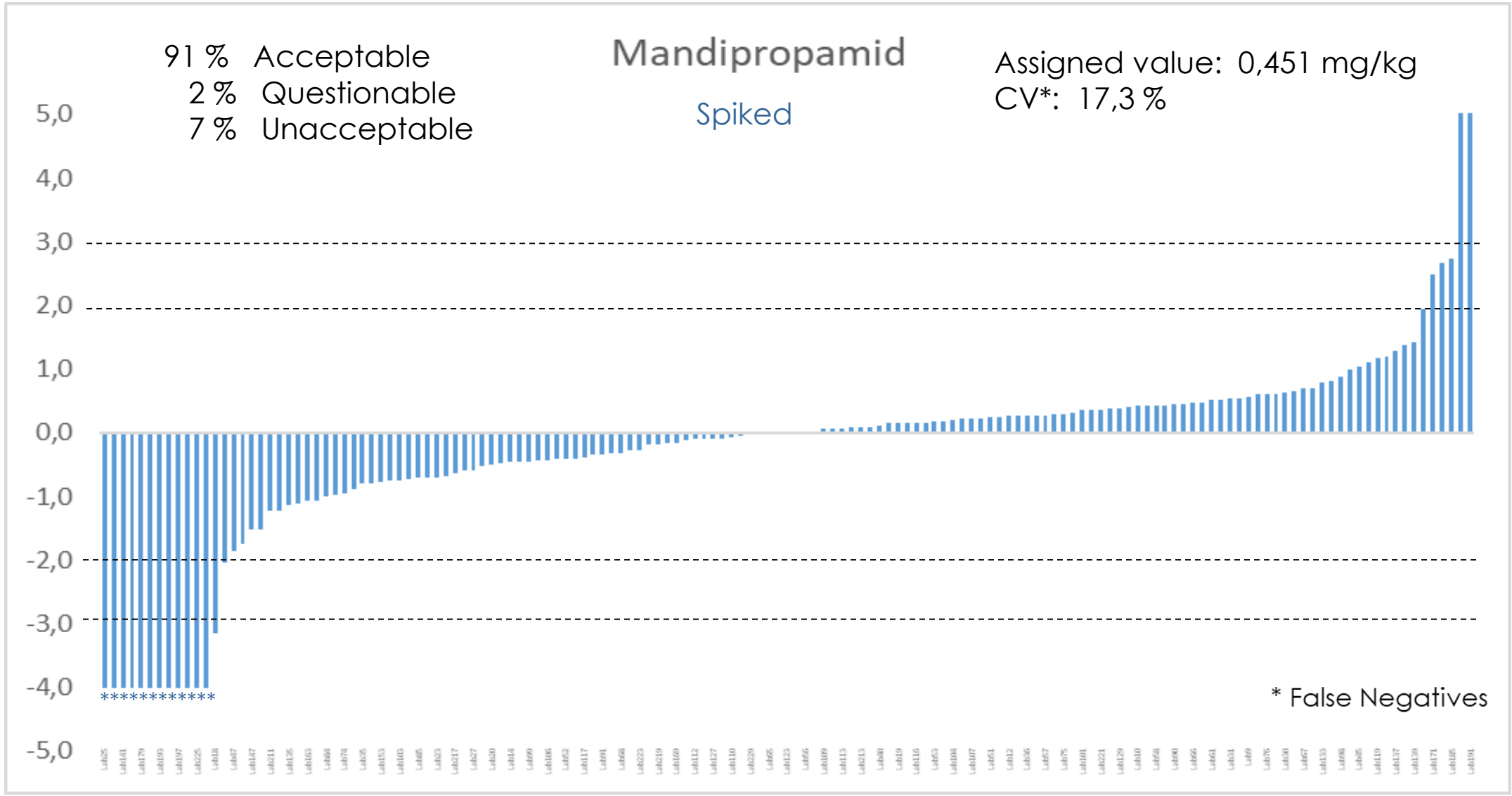
92 % Acceptable
1 % Questionable
7 % Unacceptable

Imazalil

Incurred

Assigned value: 0,086 mg/kg
CV*: 22,2 %



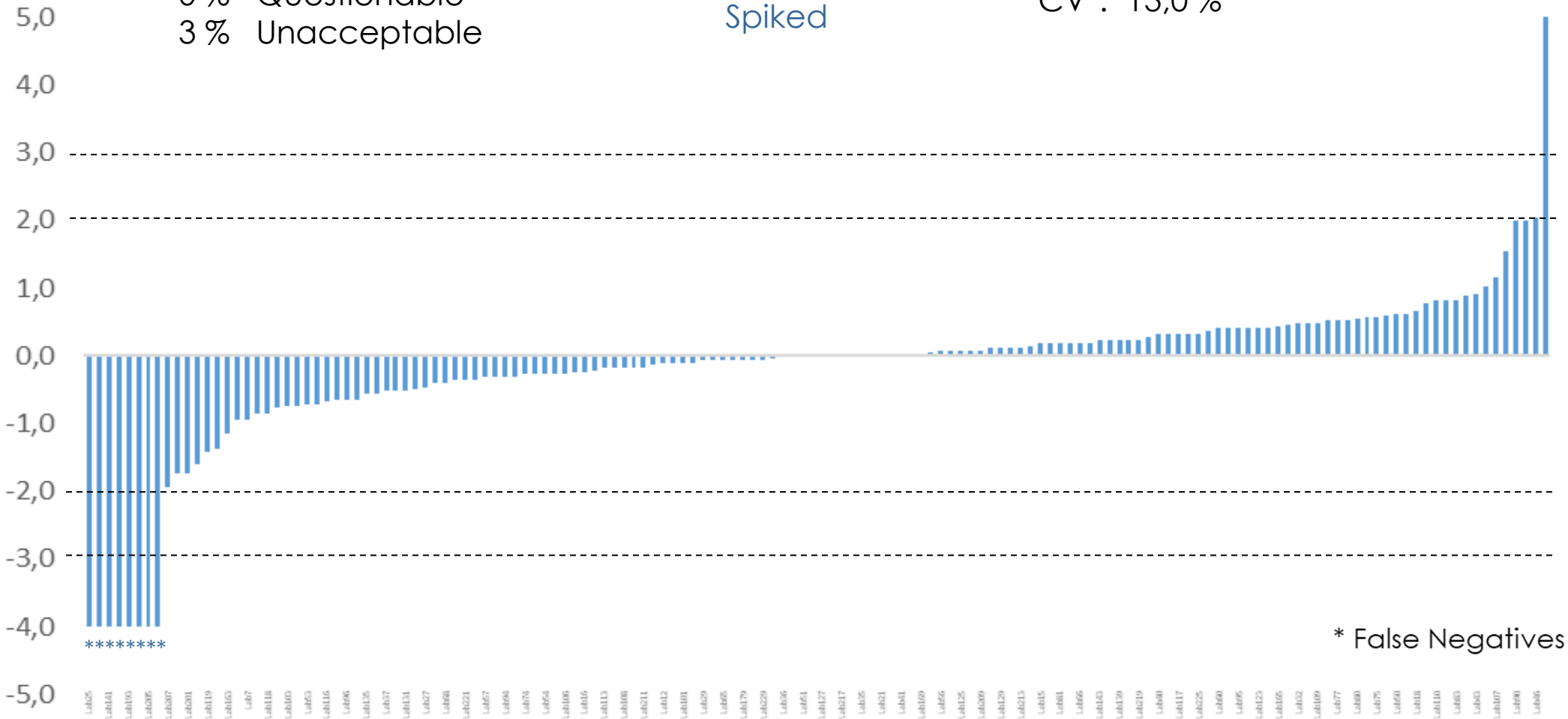

91 % Acceptable
2 % Questionable
7 % Unacceptable
Mandipropamid
Spiked
Assigned value: 0,451 mg/kg
CV*: 17,3 %
5,0
4,0
3,0
2,0
1,0
0,0
-1,0
-2,0
-3,0
-4,0
-5,0
****
* False Negatives

97 % Acceptable
0 % Questionable
3 % Unacceptable

Mepanipyrim

Spiked

Assigned value: 0,081 mg/kg
CV*: 13,0 %

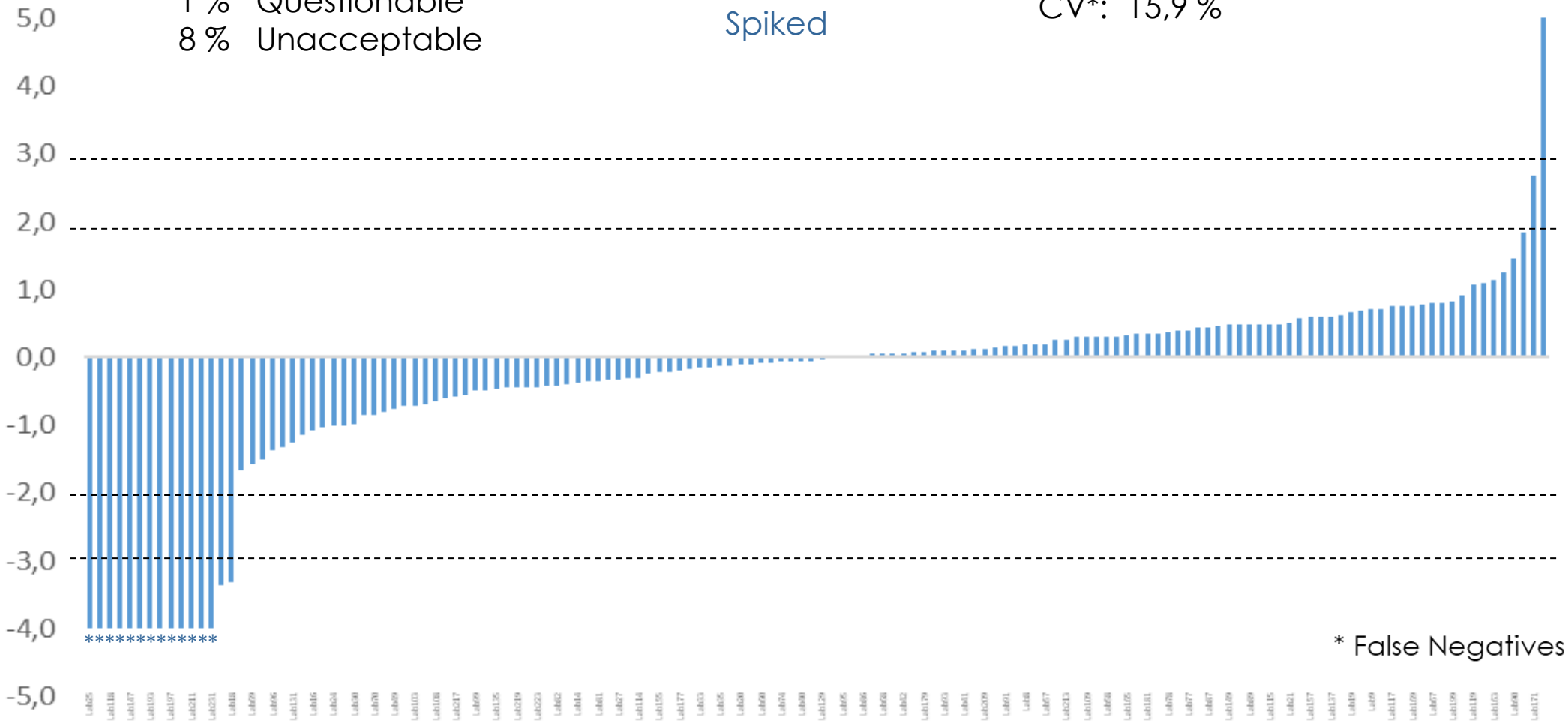


91 % Acceptable
1 % Questionable
8 % Unacceptable

Metrafenone

Spiked

Assigned value: 0,562 mg/kg
CV*: 15,9 %

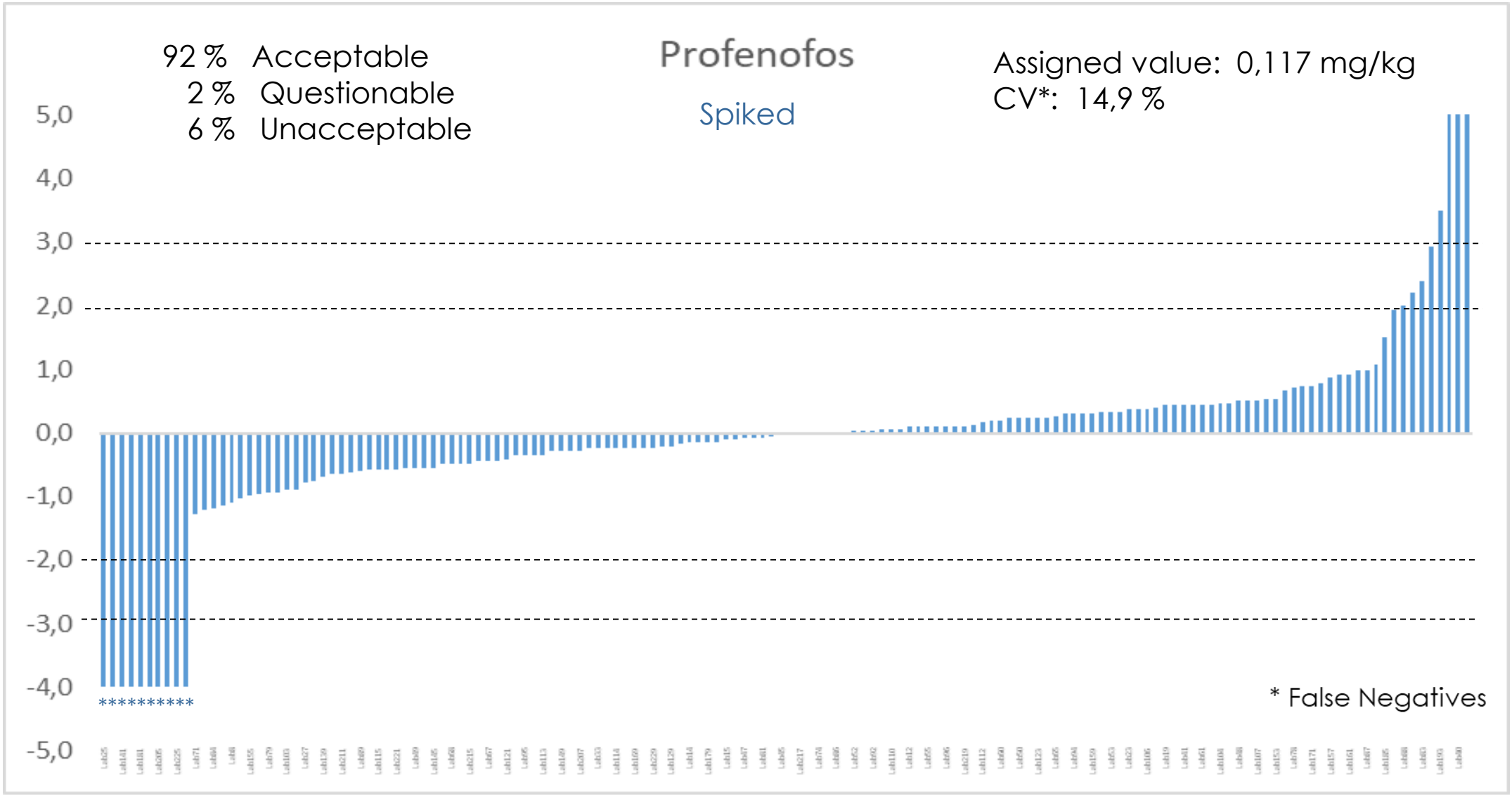


92 % Acceptable
2 % Questionable
6 % Unacceptable

Profenofos

Spiked

Assigned value: 0,117 mg/kg
CV*: 14,9 %

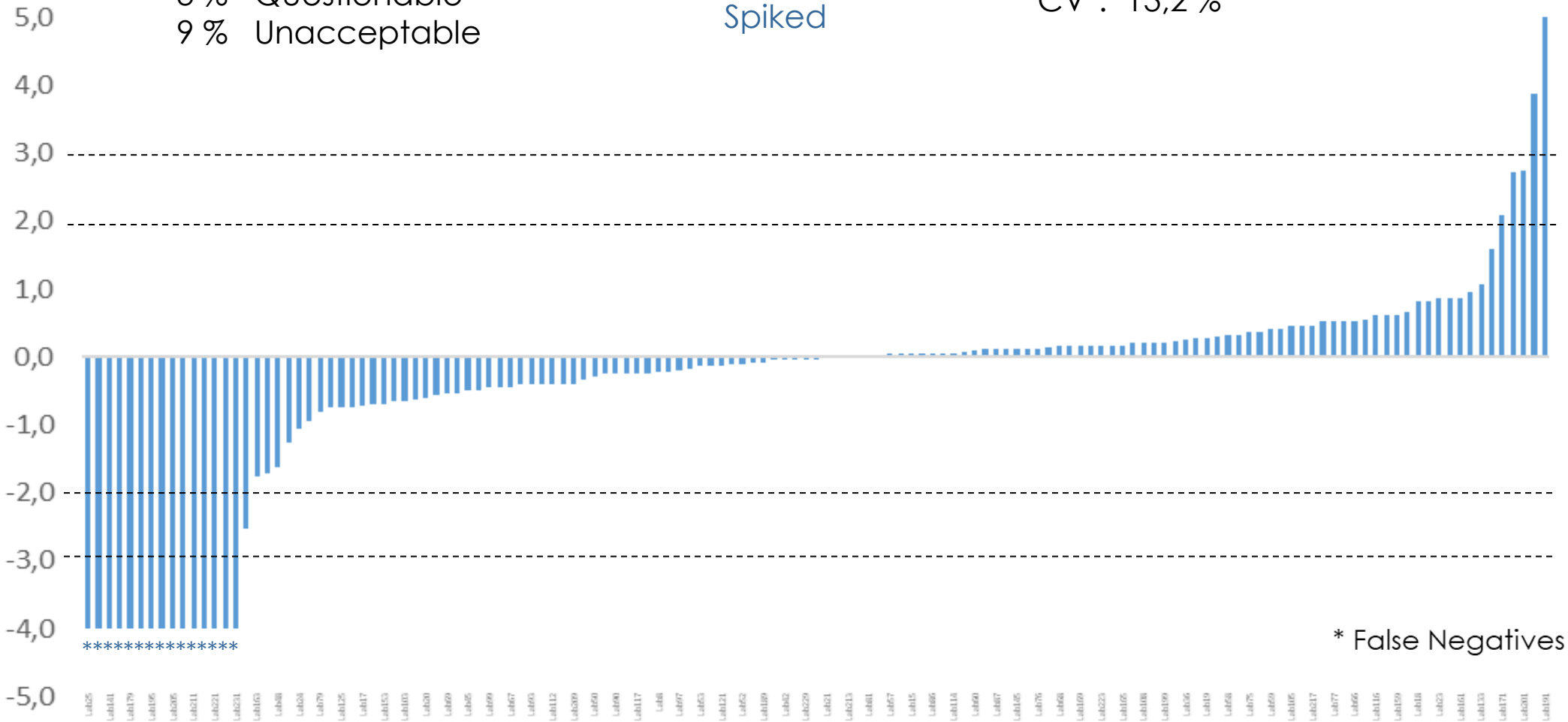


88 % Acceptable
3 % Questionable
9 % Unacceptable

Proquinazid

Spiked

Assigned value: 0,079 mg/kg
CV*: 13,2 %

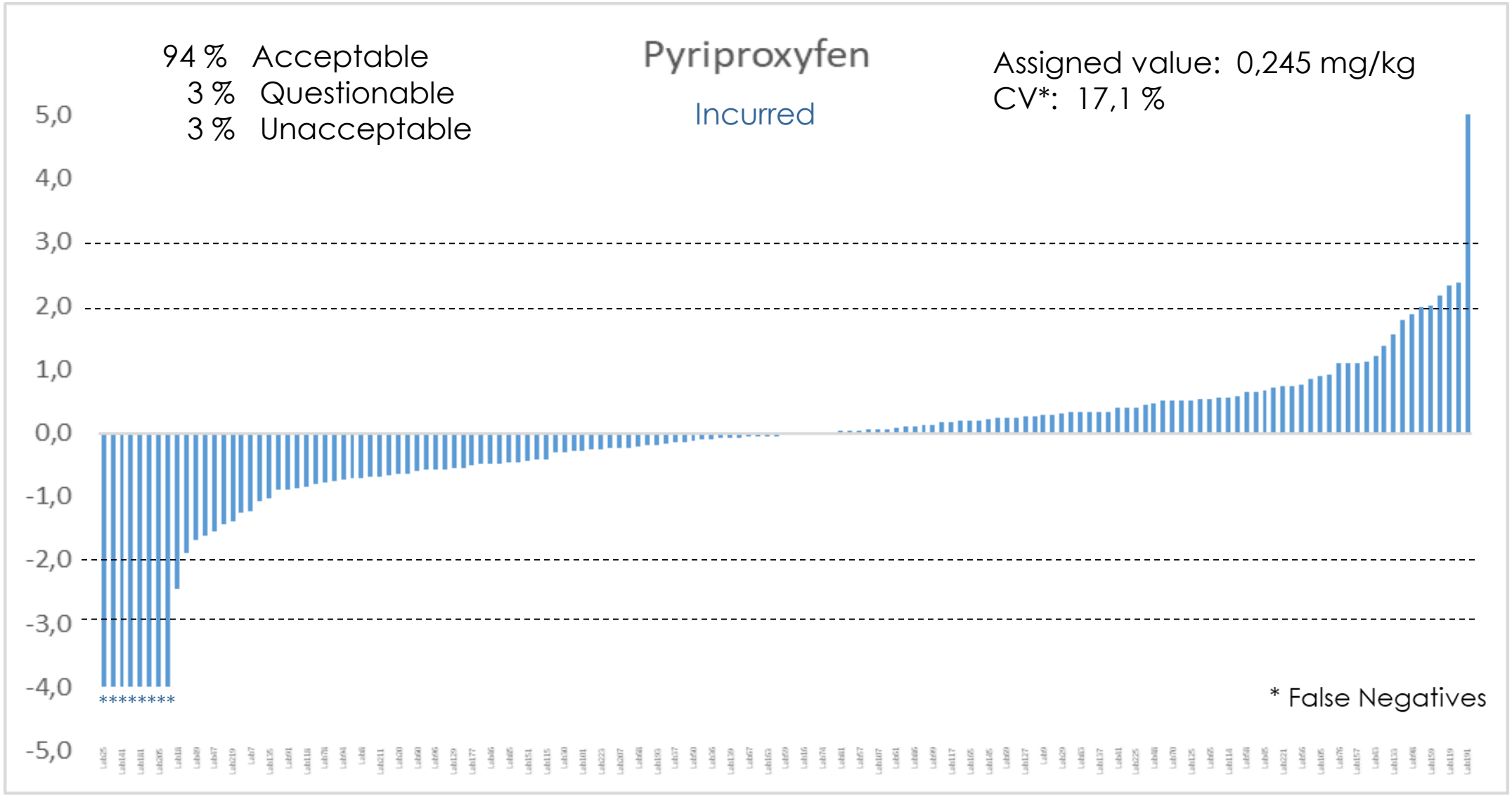


94 % Acceptable
3 % Questionable
3 % Unacceptable

Pyriproxyfen

Incurred

Assigned value: 0,245 mg/kg
CV*: 17,1 %

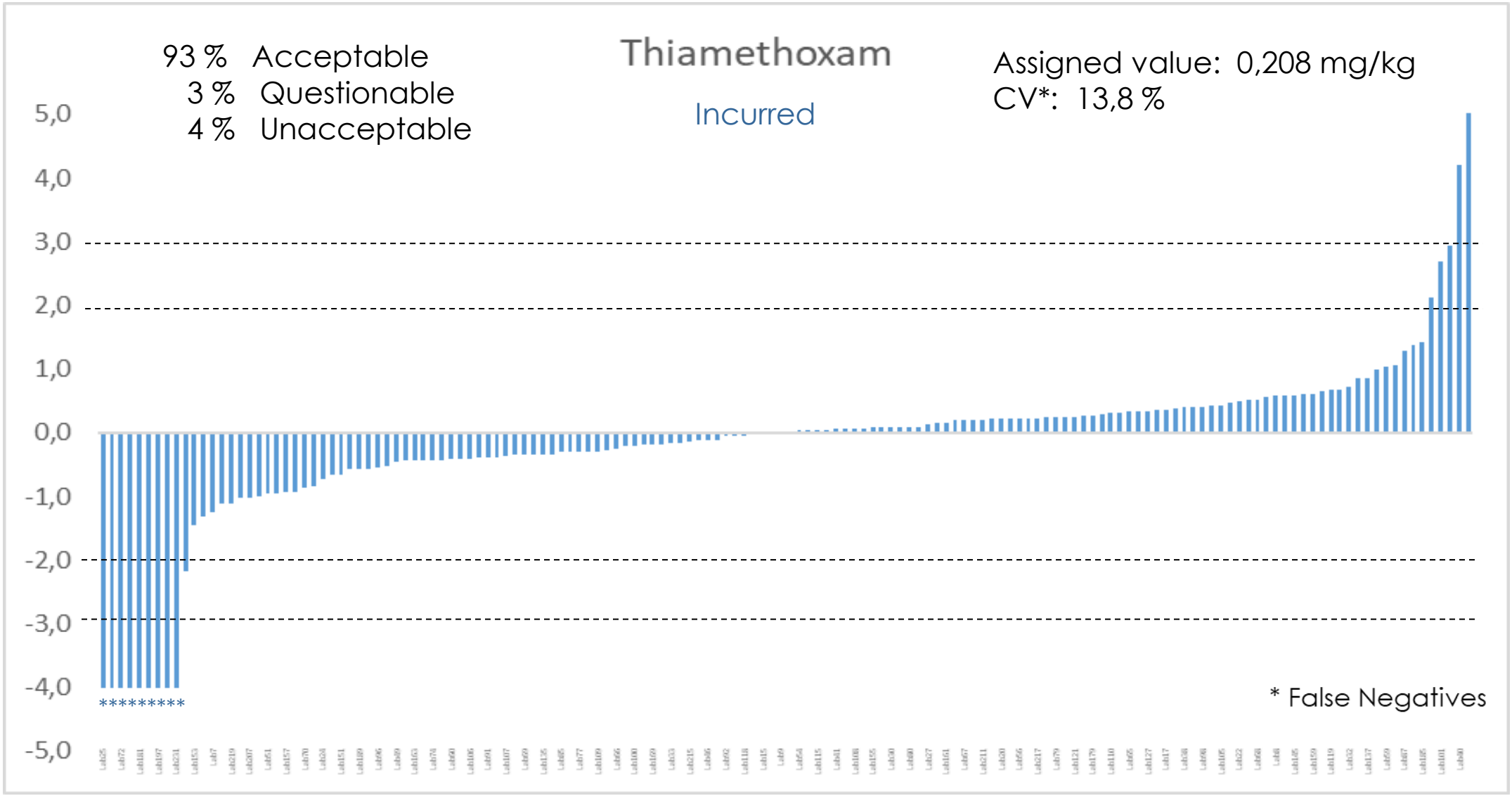


93 % Acceptable
3 % Questionable
4 % Unacceptable

Thiamethoxam

Incurred

Assigned value: 0,208 mg/kg
CV*: 13,8 %

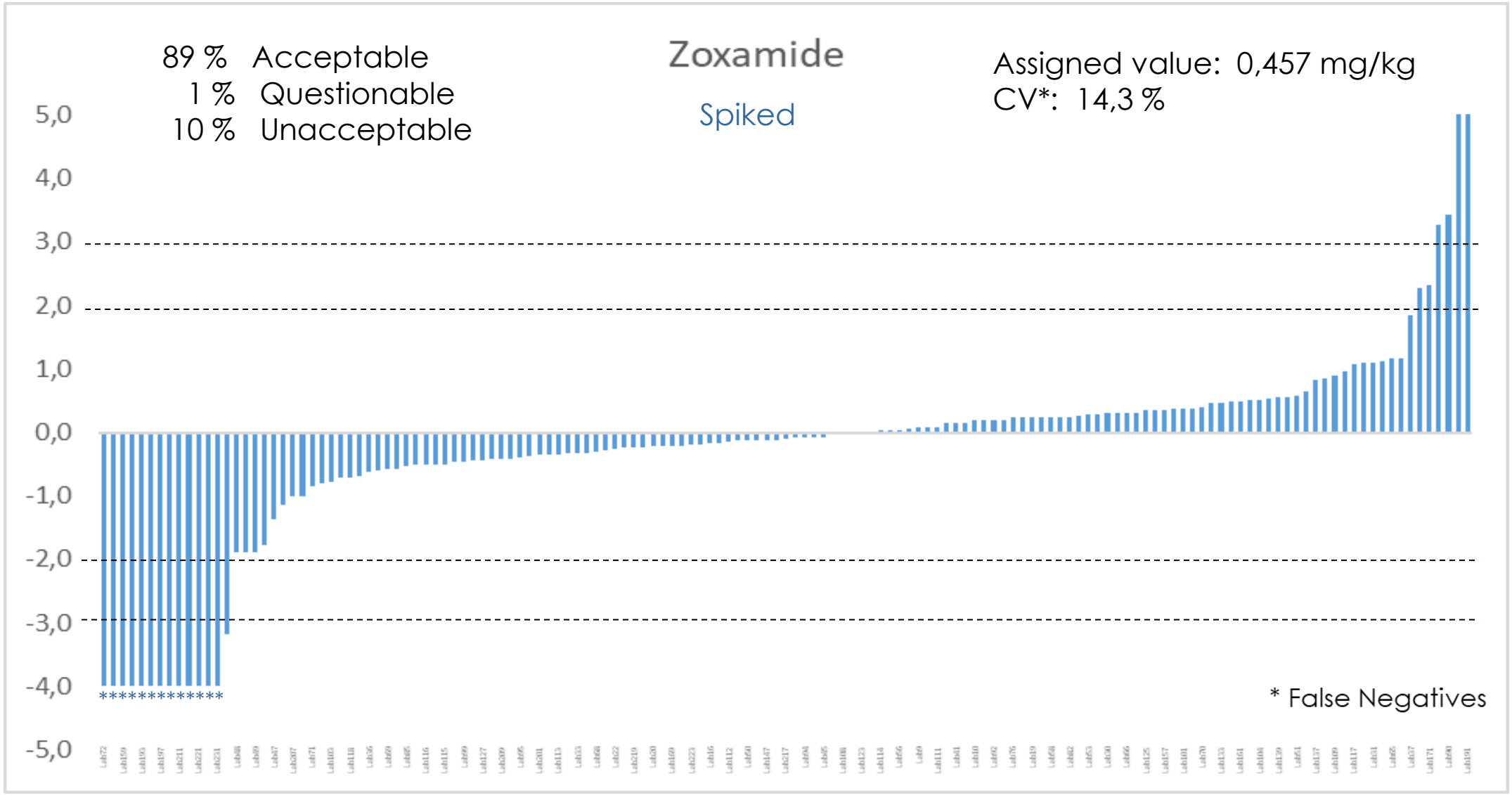


89 % Acceptable
1 % Questionable
10 % Unacceptable

Zoxamide

Spiked

Assigned value: 0,457 mg/kg
CV*: 14,3 %



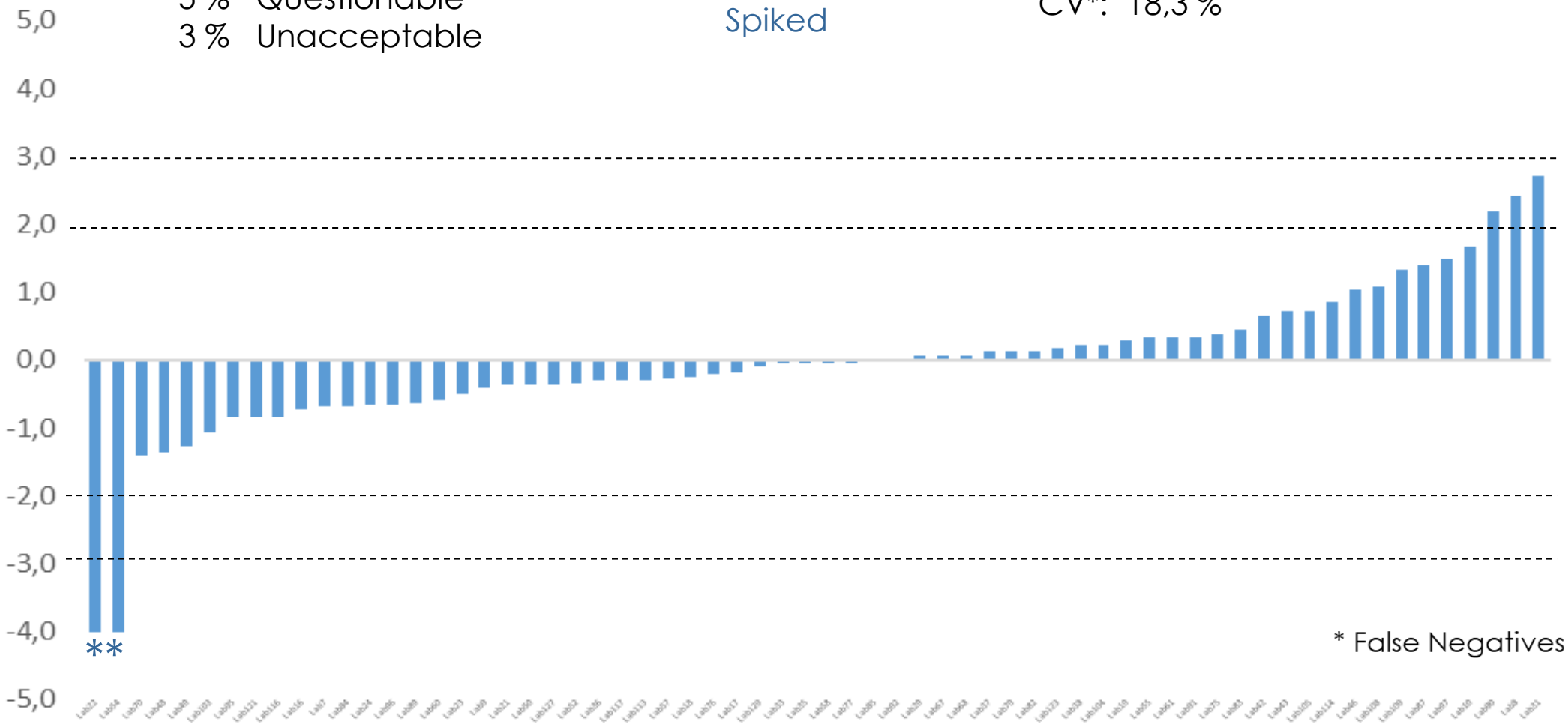
Voluntary Compound

92 % Acceptable
5 % Questionable
3 % Unacceptable

Novaluron

Spiked

Assigned value: 0,102 mg/kg
CV*: 18,3 %



EU/EFTA Laboratories

Average of squared z scores

Category A

190

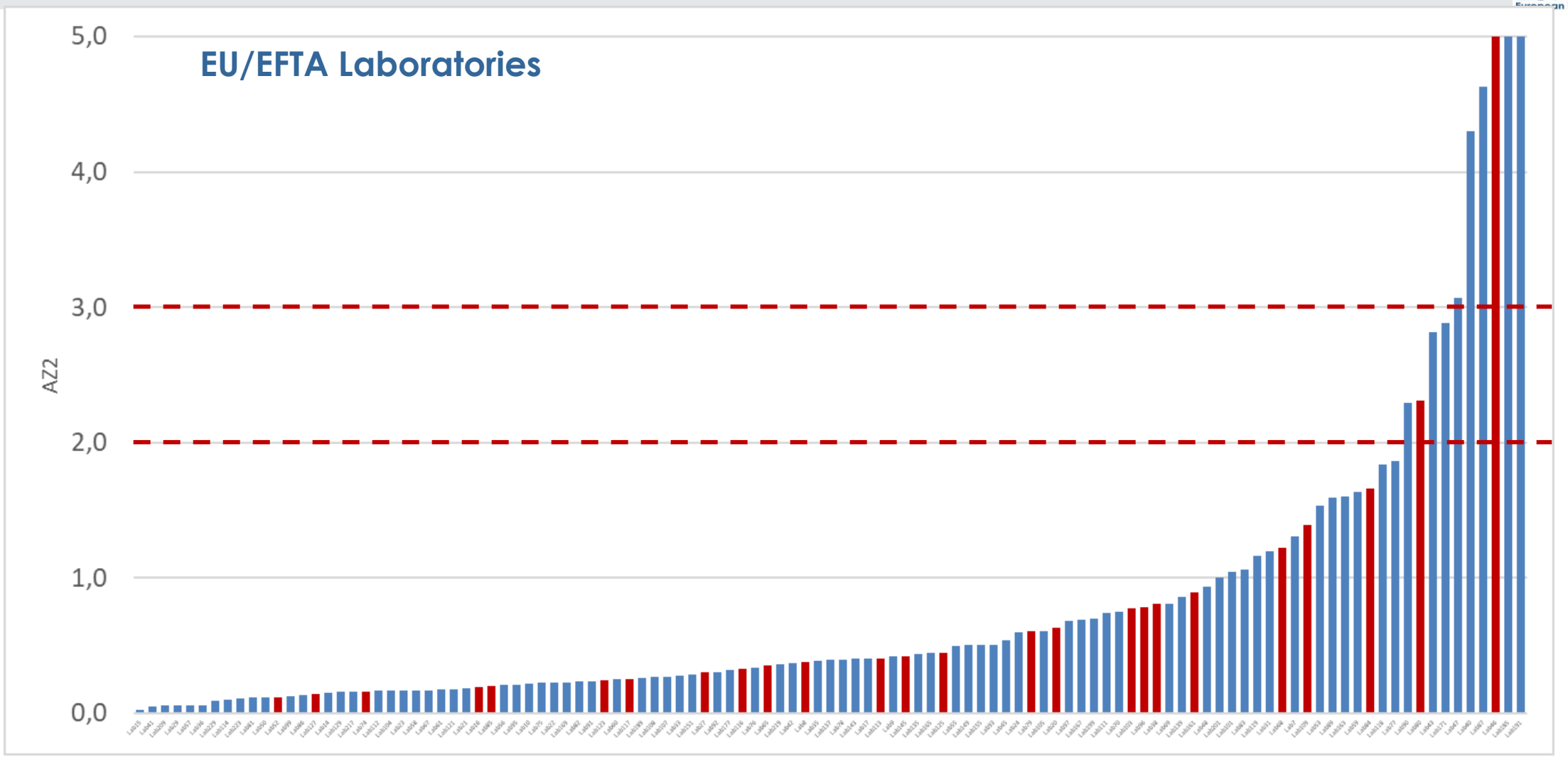
Laboratories that were able to analyse at least **90% of the compulsory pesticides in the target pesticides list**, that detected and quantified at least **90 % of the mandatory pesticides present in the Test Item** and reported **no false positives.**

15

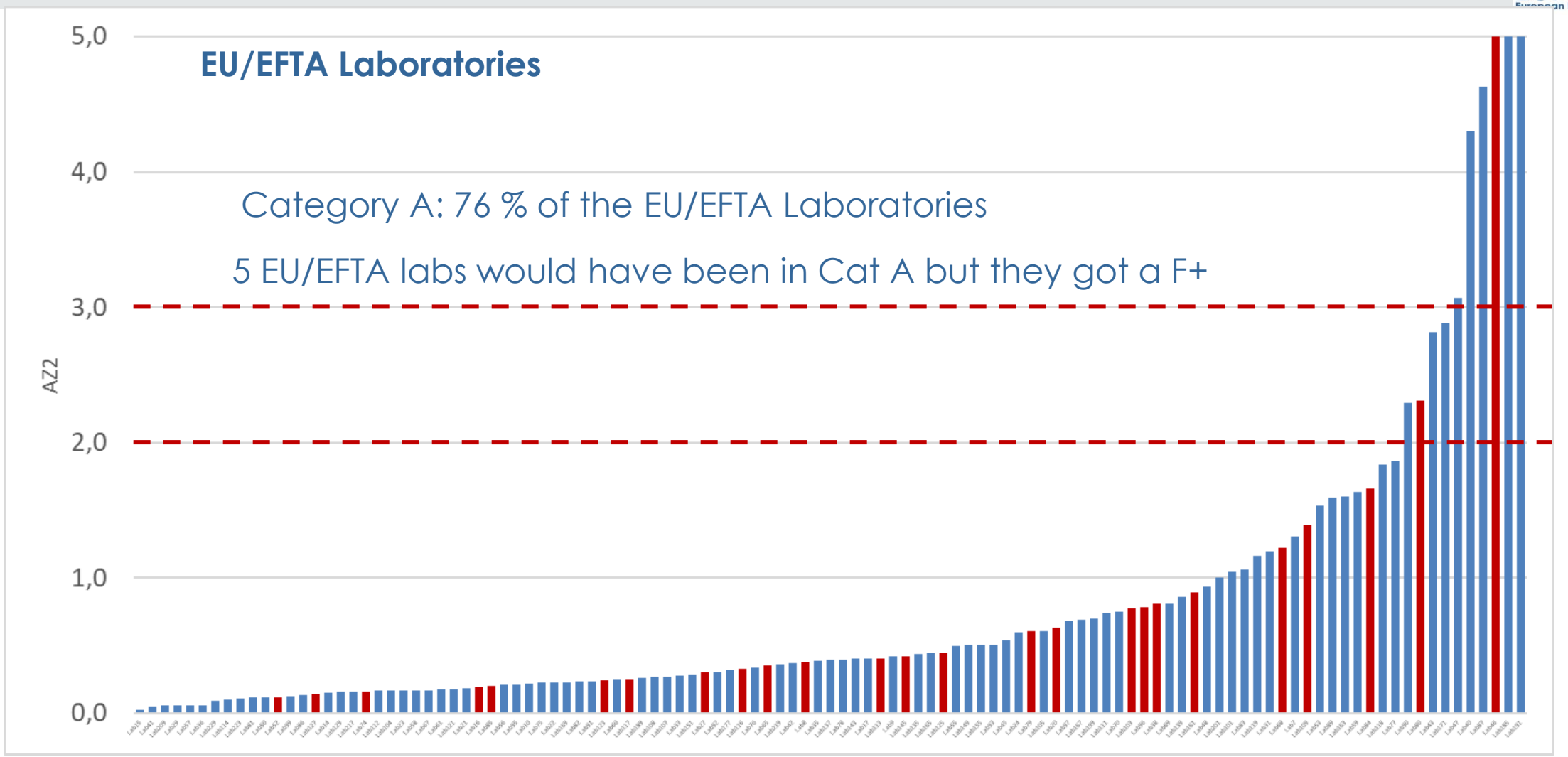
$$AZ^2 = \frac{\sum_{i=1}^{n} Z_i^{\,2}}{n}$$

$AZ^2 \leq 2.0$ Good
$2.0 < AZ^2 < 3.0$ Satisfactory
$AZ^2 \geq 3.0$ Unsatisfactory

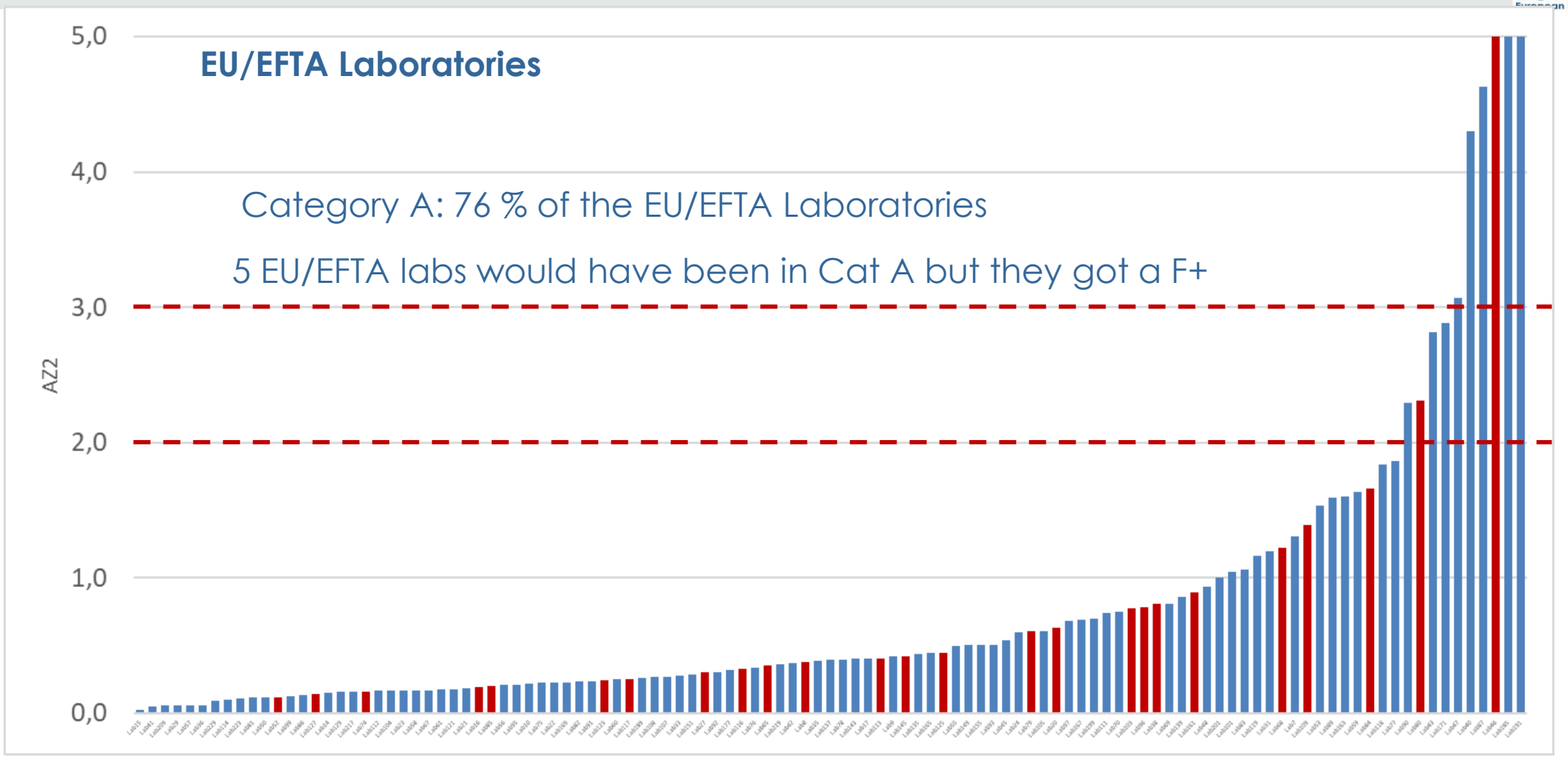
Category A Clasification



Category A Clasification



Category A Clasification



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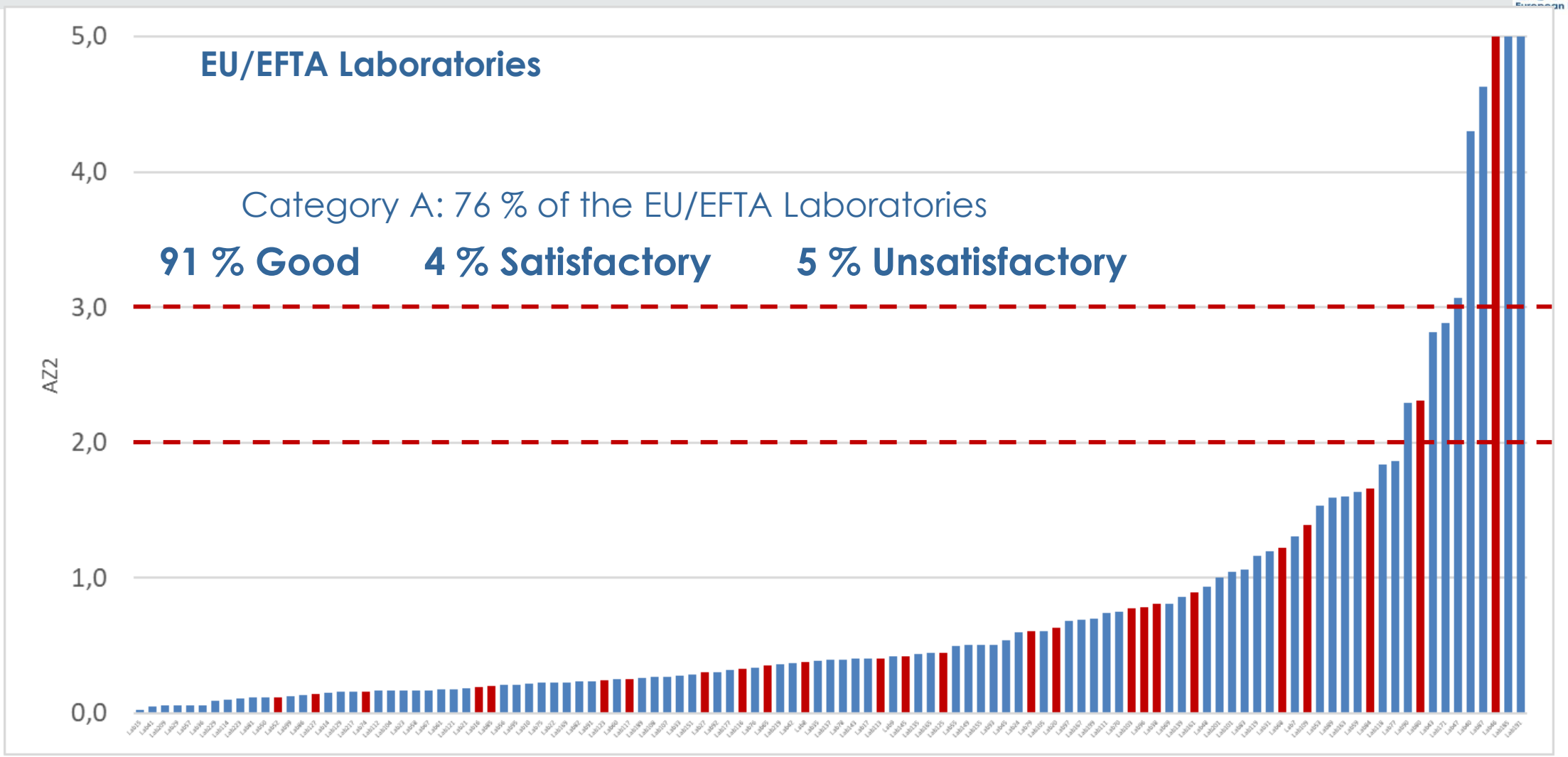
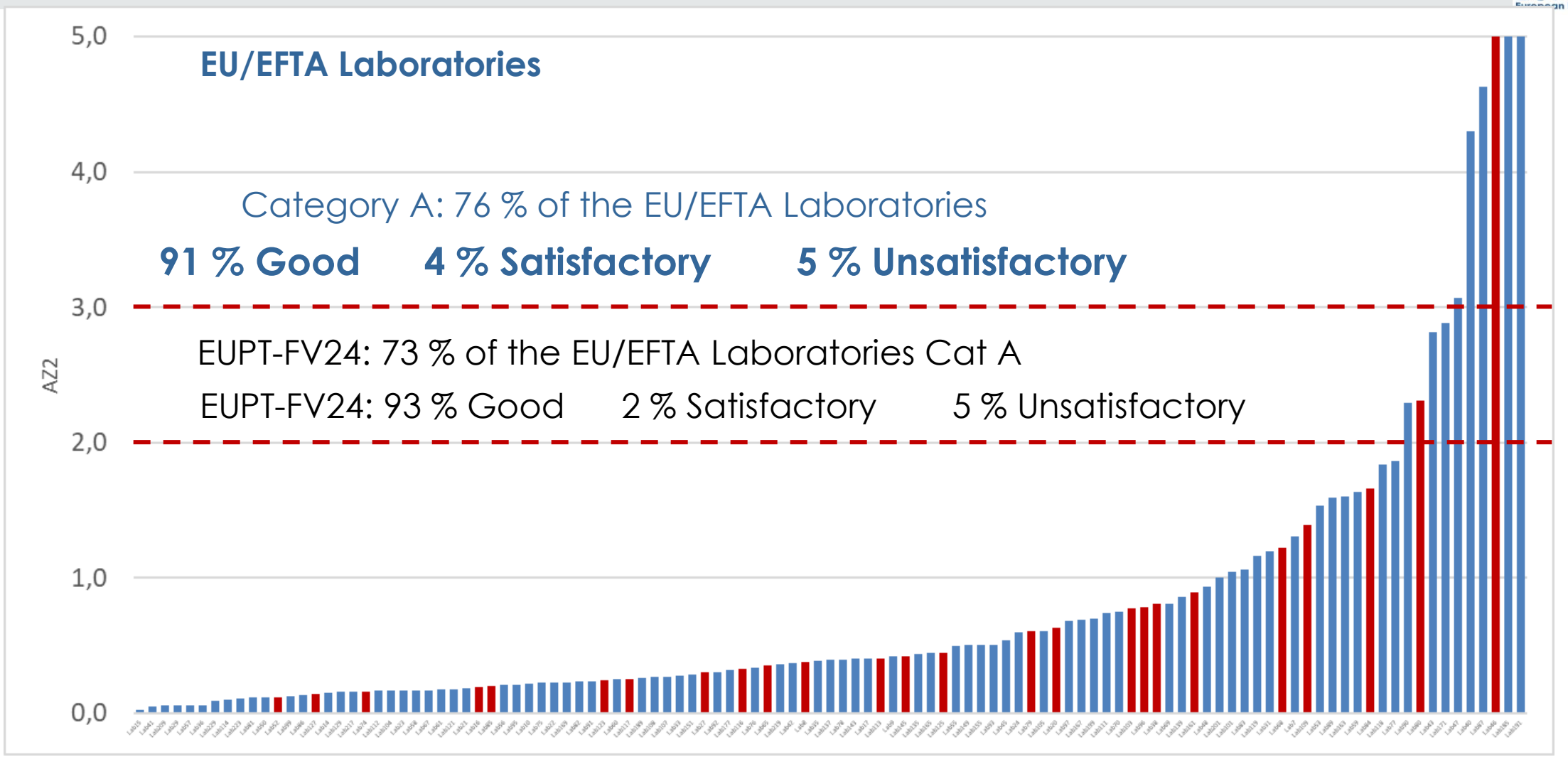


Category A Clasification



Thank You
for Your Attention

EURL EUROPEAN UNION REFERENCE LABORATORY