

TESTQUAL
PROFICIENCY TESTING SCHEMES

TestQual, S.L.
(Proficiency Testing Schemes)

Pol. Industrial Oeste
Av. Principal, Parcela 21/1
CP 30169, San Ginés, Murcia
Telephone: 868 949 486 / 676 367 555

TestQual 164 PROTOCOL
Pesticides (Multiresidues and acidic
herbicides) in Almond

Summary of changes

Changes marked with **blue** or **highlighted blue**.

Rev01 →

- Acceptance deadline of applications updated.
- Text added regarding LOQs and applications acceptance.
- More info added about subcontracting done.
- Translated herbicide pesticides to English from Spanish and following changes:

2,4-D added to possible spiked analyte.

Deleted (Did not appear/request LOQ in website): Diclorprop, Dinoseb, picloram, bromoxynil, imazaquin, imazapic, Quizalofop, aminopyralid, carfentrazone.

•If z'-score is issued, it **can** be accredited **if the technical annex requirements are met** and the difference against z-score will be included in the report.

This proficiency test is NOT accredited (currently not included in our scope).

•Other minor changes

Rev02 → **Calendar, statistical design & appellation period for evaluation report updated.**

INDEX

0. GLOSARY AND ABBREVIATIONS.....	3
1. INTRODUCTION	3
2. OBJECTIVE	3
3. CALENDAR	3
4. REGISTER AND PARTICIPATION REQUEST (APPLICATION FORM).....	4
5. PREPARATION AND QUALITY CONTROLS	5
6. TEST MATERIAL AND SAMPLE SHIPMENT.....	6
7. CONCENTRATION RANGES, SIGMA OBJECTIVE AND ANALYTES.....	7
8. RESULTS EXPRESSION.....	8

9. STATISTICAL EVALUATION.....	9
10. EVALUATION REPORT.....	13
11. CONTACT	14
12. REFERENCES.....	14

0. GLOSARY AND ABBREVIATIONS

Text	Abbreviation
TestQual	TQ
Proficiency test	PT / P.T.
Limit Of Quantification	LOQ
Not Analysed	NA

1. INTRODUCTION

This document describes the **protocol** of the **TestQual 164** Proficiency Test (P.T.), belonging to the analysis of **Pesticides** in **Almond**.

In the present document is detailed how to start working with TestQual, send your application to participate, the statistic that will be applied and information about the evaluation report.

TestQual, S.L. is committed to maintaining confidentiality with the information of each laboratory from the beginning of the proficiency test.

2. OBJECTIVE

The objective of the **TestQual 164** Proficiency Test is to evaluate the quality and accuracy of the results sent by the participating laboratories. Because of this, proficiency testing is an essential element of laboratory quality assurance. It will help to control and detect errors in their results or methods of analysis.

3. CALENDAR

The following table shows the program for this proficiency test:

Date	Activity	Carried out by
------	----------	----------------

--	Deadline to reserve PT sample. Ensured reviewing* of application.	Participants
Week 36 (15/Sep/22)	Deadline to send application (acceptance depends on availability)	Participants
Week 38 (19/Sep - 21/Sep)	Sample delivery	TestQual
Week 41 (14/Oct/22)	Final date to submit results	Participants
Week 43 (28/Oct)	Final report (Email and/or client area)	TestQual

*Participants are requested in the application to submit their LOQ/LOQs, for PTs with multiple possible analytes, if participants analyse above a certain percentage (as described in our internal procedure) of present/planned analytes the participation is accepted, a laboratory code is granted and sent by email to confirm the participation acceptance to the user of the TestQual's account.

The dates of this calendar might be slightly changed according to the development of the proficiency test during the year. However, any change would be notified to all participants announcing it on our website www.TestQual.com.

The **coordinator** of this proficiency test will be Jose Pedro Navarro. Vicente. Any question regarding the development of the proficiency test, the application status or any other query can be consulted by email to jpnavarro@testqual.com.

4. REGISTER AND PARTICIPATION REQUEST (APPLICATION FORM)

NEW CLIENT

If your laboratory has not participated before in one of our proficiency tests you will have to register on the [REGISTER](#) form.

Once you have completed and sent the form you will have to wait until the activation of the account from the website administrator. If some more information is needed someone from our team will get in contact with you through the phone or email you used during your registration.

You can find our contact data at the end of this protocol.

For those laboratories that require more than one contact per account or are in a situation not contemplated in this protocol will have to contact the organizer using the Contact tab to be instructed how to proceed.

APPLICATION FOR THE PROFICIENCY TEST

To participate in this proficiency test or be updated via email of any changes regarding this proficiency test is required to have a laboratory code. To get your laboratory code is needed to apply through the website or have it arranged by the coordinator at least 24h before the shipping of the samples.

In the Proficiency Tests Tab on our website, you will have to select the proficiency test you want to participate, by clicking its name or the shopping cart you will enter the page with general information and a summary of that proficiency test, there you can find the present document (the protocol) and the button to start the application.

If you did not log in before you will be requested to do so and then the website will require you to submit your Limit Of Quantification (LOQ) for the parameters you will study. The compounds left as NA (NOT ANALYSED) will NOT appear in the Results form and therefore will not be able to send results for those parameters through the website.

Once the application has been sent, as soon as possible, it will be checked by the website administrator, and you will be sent an email with the participation code. This code will be just known only by the organizer and the participant and will be always kept confidential, even after the proficiency test finishes.

You can check on the dashboard of your client area if an application you sent has been accepted or is still pending.

Just one application per exercise can be sent by each laboratory, being not allowed for a laboratory to participate with two different codes.

The applications of the laboratories will be studied and accepted in base of the quantification limits of the analytes of the proficiency test and if the logistics allow the sample shipping without risk of deterioration.

According to the experience, TestQual can anticipate that the number of participants of this proficiency test will be around **8-18**.

5. PREPARATION. DISTRIBUTION AND CONTROL

TestQual 164 scheme is a proficiency test based in the analysis of **Pesticides** in **Almond** that has been spiked with **standards**.

The material will be bought in an specialized shop in Spain and analysed by a subcontracted laboratory that holds the standard UNE-EN ISO/IEC 17025 into force.

The material is grounded into a powder-puree like texture, which will be spiked with a solution with the analytes of the PROFICIENCY TEST and poured into a homogenizer with controlled temperature to ensure complete homogeneity.

Once the lot of samples is ready they will be stored in a temperature-controlled freezer below -20°C until the dispatch of the samples.

The distribution of samples was subcontracted to a courier previously homologated by TestQual. The main criteria being the courier's delivery time to ensure the receival of the sample is correct in the participant's facilities.

In addition to this, TestQual stablished other characteristics important for a courier like shipping management (tracking, notifications, exceptions), and ensuring the delivery conditions are proper (low breakage/lost ratio, keeping of cold chain, required documentation), always checking and evaluating they are complying with TestQual's requirements.

Before the samples are distributed, for the assessment of the homogeneity of the lot of samples prepared, ten samples from the lot will be selected randomly and analysed in duplicate by TestQual's collaborator laboratory under repeatability conditions. If the mean concentration obtained from this study is not within the planned range, the participants will be informed and a new distribution day might be scheduled if another spiking is deemed as necessary.

For stability assessment purpose, three samples are analysed, in duplicate, before, during and at the end (once all laboratories have sent the results) of the proficiency test.

The quality controls subcontracted by TestQual, including verification of adequacy of the matrix, homogeneity/stability quality controls and any other analytical study required by TestQual will be subcontracted to an accredited laboratory in ISO/IEC 17025 into force.

In the evaluation report will be included the conclusions and if applies, any comment regarding homogeneity &/or stability. Additionally, the results of these tests and the spiking evaluation is available to all participants of this proficiency test upon request.

6. TEST MATERIAL AND SAMPLE SHIPMENT

The shipment of the test materials will take place on the date shown in the calendar, to the address provided by each laboratory in the application. Specific delivery dates can change from the scheduled dates of the calendar, but all changes will be announced both in the website and by mail to the registered laboratories.

This PT will consist in a single round in which will be sent a sample of approximately **50-80 g** of test material. The samples will be sent by courier service (MRW, FedEx, DHL or TNT, depending on the destination).

The material will be sent with materials and package that ensures the samples arrives correctly. The transit will be 1, 2 or 3 days to the destination country, depending on the location of the receiving laboratory.

The shipping conditions for this PT are:

ROOM TEMPERATURE, The material will be sent in a vacuum packed, heat sealed plastic bag in dark conditions (opaque and padded envelope).

The shipping costs are not included in the price displayed on the website, which can only be seen if you are registered and logged in. To get an approximation of the shipping costs you can get your quotation by using the contact data at the end of this protocol.

A second test material can be requested date if necessary. If the package and/or the sample arrived damaged, defective, or not valid the participating laboratory will have to notify of this to the coordinator before two working days to get another sample.

Before the shipment, TestQual will send the instructions for storage and analysis via email and confirm the distribution date. You can request a paper copy to be attached to the package and/or TestQual might decide to include it in addition to have it sent by email.

From TestQual we encourage our participants to read it carefully and follow its instructions, as it can help to correctly conserve the sample and increase the reproducibility of the analysis.

You can request a digital copy of this document by letting us know through any communication channel.

7. CONCENTRATION RANGES, SIGMA OBJECTIVE AND ANALYTES

For this proficiency tests the range of concentration for the target analytes might be between **10 and 200 µg/Kg approximately**. This range is not absolute and depending on the various factors some or no analyte might be within this range. This range is given to provide participants a sense of the concentration ranges we usually work and expect in these kind of proficiency tests (combination of analyte/matrix).

The maximum concentration can vary depending on the MRL of the analytes in the matrix.

The **sigma objective ($\hat{\sigma}$)** which works in this scheme can be checked on section 9 of this protocol.

The **possible pesticides** in the Almond are from the list below:

2-Phenylphenol	Bromophos-ethyl	Cyproconazole	Dicloran
3,5-Dichloroaniline	Bromophos	Clethodim	Dicrotophos
3-Hydroxy-carbofuran	Bromopropylate	Clofentezine	Dieldrin
4,4-	Bromuconazole	Clomazone	Diethofencarb
Dichlorobenzophenone	Bupirimate	Cloquintocet-mexyl	Difenoconazole
Abamectin	Buprofezin	Chlorfenson	Difenoxyuron
Acephate	Butafenacil	Chlorotoluron	Diflubenzuron
Acetamiprid	Butamifos	Chloroxuron	Diflufenican
Acetochlor	Butoxycarboxim	Chlorpropham	Dimethenamid
Aclonifen	Butralin	Chlorsulfuron	Dimethoate
Acrinathrin	Buturon	Chlorthal-dimethyl	Dimethomorph
Alachlor	Cadusafos	Clothianidin	Dimoxystrobin
Aldicarb	Captan	Coumaphos	Diniconazole
Aldicarb sulfone	Carbaryl	Kresoxim-methyl	Dioxacarb
Aldicarb sulfoxide	Carbendazim	Crimidine	Dioxathion
Aldrin	Carbophenothion	Cyanofenphos	Diphenylamine
Anthraquinone	Carbofuran	Cyanophos	Dipropetryn
Atrazine	Chlorantraniliprole	Cycloxydim	Disulfoton
Azaconazole	Chlorbromuron	Cyprodinil	Ditalimfos
Azinphos-ethyl	Chlorfenapyr	Deltamethrin	Diuron
Azinphos-methyl	Chlorfenvinphos	Demeton-S-methyl	Dodine
Azoxystrobin	Chlormephos	Demeton-S-methyl sulfone	Emamectin benzoate
Benalaxyl	Chloroneb	Desmetryn	B1a
Bendiocarb	Chloropropylate	Dialifos	Endosulfan-alpha
Benfluralin	Chlorpyrifos	Diazinon	Endosulfan-beta
Benfuresate	Chlorpyrifos Methyl	Dicapthon	Endosulfan-sulfate
Bentazone	Chlorthion	Dichlofenthion	Endrin
Bifenthrin	Chlorthiophos	Dichlormid	EPN
Bitertanol	Cyanazine	Dichlobenil	Epoxiconazole
Boscalid	Cyazofamid	Diclobutrazol	Etaconazole
Brodifacoum	Cyfluthrin	Dichlofluanid	Ethion
Bromacil	Cymoxanil	Diclofop-methyl	Ethoprophos
Bromocyclen	Cypermethrin		Etoxazole

TestQual 164 almond. Protocol. Rev. 02
TestQual, S.L. Proficiency Testing Schemes

Ethiofencarb	Hexachlorobenzene	Norflurazon	Propyzamide
Ethiofencarb -sulfone	Hexaconazole	Nuarimol	Propoxur
Ethiofencarb -sulfoxide	Hexaflumuron	Ofurace	Prosulfocarb
Etofenprox	Hexazinone	Omethoate	Prothiofos
Ethofumesate	Hexythiazox	op-TDE (DDD)	Pyridafenthion
Etrinfos	Imazalil	Oxadiazon	Pyrimethanil
Famoxadone	Imazamethabenz-methyl	Oxadixyl	Quinalpho
Famphur (Famophos)	Imidacloprid	Oxamyl	Quinoxifen
Fenarimol	Indoxacarb	Oxamyl-oxime	Quintozene
Fenazaquin	Iprobenfos	Oxydemeton-methyl	Rotenone
Fenbuconazole	Iprodione	Oxyfluorfen	Simazine
Fenbutatin oxide	Iprovalicarb	Paclobutrazol	Simetryn
Fenchlorphos	Isazofos	Parathion	Spinosad A+D
Fenhexamid	Isocarbophos	Parathion-methyl	Spirodiclofen
Fenitrothion	Isofenphos	Pebulate	Spiromesifen
Fenoxycarb	Isofenphos-methyl	Penconazole	Spiroxamine
Fenpropathrin	Isoproturon	Pendimethalin	Sulfotep
Fenpropimorph	Lambda-Cyhalothrin	Pentachloroanisole	Sulprofos
Fenpyroximate	Lenacil	Permethrin	Tebuconazole
Fensulfothion	Leptophos	1,1-(2,2-dichloroethylidene)	Tebufenozide
Fenthion	Linuron	bis(4-methoxybenzene)	Tebufenpyrad
Phenthoate	Lufenuron	(methoxychlor metabolite)	Tebupirifos
Fenuron	Malaoxon	Phenmedipham	Tecnazene
Fenvalerate	Malathion	Picoxystrobin	Teflubenzuron
Fipronil	Mecarbam	Piperonyl butoxide	Tefluthrin
Flonicamid	Mefenpyr-diethyl	Pyraclostrobin	Terbacil
Fluazifop-P-butyl	Mepanipyrim	Pyrazphos	Terbufos
Fluchloralin	Mepronil	Pyrifenox	Terbumeton
Flucythrinate	Metalaxyl	Pirimicarb	Terbutryn
Fludioxinil	Metamitron	Pirimicarb-desmethyl	Tetraconazole
Flufenoxuron	Metazachlor	Pirimiphos-ethyl	Tetradifon
Flumetralin	Methacrifos	Pirimiphos-methyl	Tetramethrin
Fluometuron	Methamidophos	Pyriproxyfen	Tetrasul
Fluotrimazole	Methidathion	pp-DDE	Thiabendazole
Fluquinconazole	Methomyl	pp-TDE(DDD)	Thiacloprid
Flusilazole	Methoxychlor	Prochloraz	Thiamethoxam
Flutolanil	Methoxyfenozide	Procymidone	Thiodicarb
Flutriafol	Metobromuron	Propham	Thiobencarb
Folpet	Metolachlor	Profenofos	Thiometon
Fonofos	Methoprottryne	Profluralin	Tolclofos-methyl
Formothion	Metoxuron	Promecarb	Triadimefon
Phosalone	Metribuzin	Prometryn	Triadimenol
Phosphamidon	Mevinphos	Propachlor	Triazophos
Phosmet	Myclobutanil	Propamocarb	Trichloronate
Furalaxyl	Molinate	Propanil	Tridemorph
Furathiocarb	Monocrotophos	Propargite	Trifloxystrobin
HCH-Alpha	Monolinuron	Propetamphos	Trifluralin
HCH-Beta	Monuron	Propiconazole	Vinclozolin
HCH-Delta	Napropamide		Yodofenfos
HCH-Gamma (lindane)	Neburon		Zoxamide
Heptachlor	Nitenpyram		
Heptachlor-epoxide	Nitrofen		
Heptenophos	Nitrothal-isopropyl		

Additionally, some of the following pesticides will be present/spiked in the proficiency test:

2,4-D (sum of 2,4-D, its salts, its esters and its conjugates, expressed as 2,4-D)

Bentazone (Sum of bentazone, its salts and 6-hydroxy (free and conjugated) and 8-hydroxy bentazone (free and conjugated), expressed as bentazone)

<i>Fluazifop-P (sum of all the constituent isomers of fluazifop, its esters and its conjugates, expressed as fluazifop)</i>
<i>Haloxifop (Sum of haloxifop, its esters, salts and conjugates expressed as haloxifop (sum of the R- and S- isomers at any ratio))</i>
<i>MCPA and MCPB (MCPA, MCPB including their salts, esters and conjugates expressed as MCPA)</i>
<i>Quinmerac</i>

For pesticides that apply, they might be in their free acid form, as conjugates, esters, salts or combination of these. Results will be submitted as the EU definition, instructions for analysis will be sent before shipping samples. Only inscribed participants will receive the email with instructions.

The proficiency test's objective is to provide a useful evaluation for both laboratories that analyze only acidic form and those who also quantify conjugates, esters, etc. with an hydrolysis step. If after certain date the matrix does not allow this we would communicate by email at the latest in the sample instructions (sent before shipping samples).

8. RESULTS EXPRESSION

Each participant laboratory must analyse the sample received according to their routine procedure and fill up the RESULTS form of its client area of the website www.TestQual.com with just one value per analyte/parameter.

The results should be expressed in $\mu\text{g/Kg}$. The number of significant figures and the units are to be chosen by laboratories and will be displayed in the report as received through the website.

The method used for the analysis of each compound informed should be sent when filling up the results form.

The organizer should get the results before the fixed data of the scheme.

If you have any problem logging in to your client area or submitting your results you can contact the coordinator of the PT for guidance or help.

Once the results are sent you can check if they were correctly recorded by accessing the detailed information of this proficiency test, which can be accessed in your client area.

9. STATISTICAL DESIGN

Any participant in this proficiency test can request further information or support about the statistical design that TestQual has developed.

TestQual considers as an **extreme outlier** any data which differs more than **50 %** of the average of all results reported by the laboratories, according to the Harmonize Protocol of the IUPAC. These extreme values will not be included in the calculation of the assigned value.

Once received all the results, TestQual evaluates the unimodality of all the values by Kernel test, being explained in the final report which is the followed procedure in case there is more than one distribution.

*If enough valid results are provided and/or the uncertainty is negligible the **assigned value (X)** will be determined using the robust average of the results considered valid for statistical computing (after eliminating the extreme outliers), according to the standard ISO 13528 into force.*

If the number of participants or the number of valid results does not reach a certain number and the uncertainty obtained using robust averages is not negligible, both the assigned value and the uncertainty will be calculated as the spiking/characterization done (design based on ISO 13528 into force).

This is done to evaluate the results against an independent value from the participants' results, since using a low number of results might cause a bias and to not detect action signals if required. The assigned value obtained from robust statistic is always compared to the assigned value obtained from characterization of the spiking done and depending on the situation TestQual might decide to use either of the assigned value, justifying that decision on the evaluation report.

If the consensus assigned value is not used, then the characterization of the spiking and the uncertainty will be calculated based in a suitable model and according to ISO 13528 into force.

The **standard uncertainty (u_x)** when the assigned value is obtained from the consensus it is calculated using robust statistics from the following formula:

$$u_x = s^*/\sqrt{p}$$

Being s^* the robust standard deviation of the data and p the number of results considered.

When the assigned value is obtained from the spiking done, the uncertainty is calculated accounting all sources of uncertainty according to our internal procedure and according to ISO 13528 into force.

The following condition must be fulfilled in order to discard the contribution of the uncertainty:

$$u_x \leq 0,3 \hat{\sigma}$$

The **standard deviation for proficiency assessment**, also named **target standard deviation, ($\hat{\sigma}$)**, comes from this formula:

$$\hat{\sigma} = b_i \cdot X$$

Being $b_i = \%_{DSRA} / 100$, and $\%_{DSRA}$ is the assigned relative standard deviation.

In this case, the assigned relative standard deviation is **25 %**.

This value is fixed previously by the organizer based in the experience of TestQual organizing this and similar proficiency tests.

Proficiency assessment (z-score): This **score** shows the competence and accuracy of the laboratory. It is calculated using the following formula:

$$z = (x_i - X) / \hat{\sigma}$$

Where x_i is the value reported by the laboratories, X is the assigned value, and $\hat{\sigma}$ is the target standard deviation for each analyte.

The criteria for defining the z-score values are:

	$ z $	≤ 2	Satisfactory
2 <	$ z $	≤ 3	Questionable
	$ z $	> 3	Unsatisfactory

In case the inequation $u_x \leq 0,3 \hat{\sigma}$ is not fulfilled, the participants of the scheme will be informed in the report that the uncertainty is not negligible. For the parameters/analytes in which this situation occurs, the following calculation will be made:

$$z'\text{-score} = (x_i - X) / \sqrt{\hat{\sigma}^2 + U_x^2}$$

Where x_i is the value reported by the laboratories, X is the assigned value, $\hat{\sigma}$ is the target standard deviation for each analyte and U_x is the uncertainty of the assigned value.

The criteria for defining the z'-score values are:

	$ z' $	≤ 2	Satisfactory
2 <	$ z' $	≤ 3	Questionable
	$ z' $	> 3	Unsatisfactory

The z'-score is a **under**estimation of the z-score, for this reason, for those analytes in which the uncertainty of the assigned value cannot be neglected and a z'-score is issued, it will be accompanied by the percentual difference against z-score, this way participants should be able to complete evaluate their performance.

The evaluation could be informative if the difference between scores surpasses the limit contemplated in our procedure. If any analyte or evaluation is informative it will be indicated in the report through marking and a legend.

False negatives: Any analyte not reported in the results that is in the sample above the limit of quantification previously established for this proficiency test by the organization and above the LOQ of the participant laboratory (**10 µg/Kg**). TestQual assigns to all false negatives a result equal to half the laboratory limit of quantitation (LOQ/2).

False positives: Those analytes reported in the results, which is not present in the test material, and is reported by the participant at concentrations higher than the limit of quantification of the P.T. (**10 µg/Kg**).

Testing for sufficient homogeneity:

Once the samples are prepared *between four and ten* of them will be chosen at random and sent to be analysed by TestQual's collaborator laboratory *in duplicate in repeatability conditions (eight to twenty results will be generated)*. *The number of samples analyzed will be chosen based on: TestQual's experience homogenizing this or similar matrixes, the analyzed number of samples is representative to the number of samples prepared, as well as other factors that might affect this proficiency test taking place.* Once received the results, a statistical evaluation will be performed, *with a modified calculation from the* Harmonic Protocol published by IUPAC *and based in ISO 13528 into force.*

The acceptance criterion to ensure that the randomly chosen samples are homogeneous is that the square of the estimated sampling standard deviation is below the critical value for accepting proper homogeneity:

$$S_{sam}^2 < c$$

In the first place to check the criterion, S_{sam}^2 which is the estimated sampling standard deviation, was calculated from:

$$S_{sam} = \left(\frac{V_s}{2} - S_{an} \right)$$

Firstly V_s is the variance of the sums S_i :

$$V_s = \sum \frac{(S_i - \bar{S})^2}{m - 1}$$

Where S_i was obtained from the addition of each duplicate result from the homogeneity; \bar{S} is the mean of all S_i and m is the number of samples.

And secondly S_{an}^2 , which is the experimental estimate of analytical standard deviation, is obtained following the next formula:

$$S_{an}^2 = \frac{\sum D_i}{2m}$$

where D_i is the result of the subtraction of each pair of replicates from the homogeneity and m is the number of samples.

In second place to check the criterion for sufficient homogeneity the critical value c was obtained from:

$$c = F_1 \cdot \sigma_{all}^2 + F_2 \cdot S_{an}^2$$

Being F_1 and F_2 constants *obtained in function of the values from the significance tables: Chi square distribution and F distribution, both with 95% confidence. For example:* equal to 1.88 and 1.01 respectively for 10 samples, *while it would be 2.1 and 1.43 respectively for 7 samples. The less samples analysed the higher c will be, making harder the criteria to consider the lot homogeneous.*

S_{an}^2 has already been calculated and σ_{all}^2 is obtained from:

$$\sigma_{all}^2 = (0.3 \cdot \hat{\sigma})^2$$

where $\hat{\sigma}$ is the target standard deviation, which is calculated with the formula:

$$\hat{\sigma} = 0.25 \cdot \bar{X}$$

Being \bar{X} , the mean of the values from the homogeneity.

If $S_{sam}^2 < c$ is true, then the lot prepared will be considered sufficiently homogeneous and only then it would be distributed. If the results from the homogeneity test does not meet the criteria TestQual would communicate any change required in the proficiency test (new lot will be prepared, new calendar, etc.).

Testing for sufficient stability:

Three samples will be analysed, in duplicate, before, during and at the end (once all laboratories have sent the results) of the proficiency test.

With these values, a study is performed according to the up to date SANTE guide (SANTE/12682/2019 Guidance document on analytical quality control), referred to analysis under repeatability conditions.

The acceptance criteria to ensure the samples have been stable during the whole proficiency test are the following:

$$\begin{aligned} |(X_{t1} - X_{t2}) / X_{t1}| \cdot 100 &\leq 10\% \\ |(X_{t1} - X_{t3}) / X_{t1}| \cdot 100 &\leq 10\% \end{aligned}$$

Being $| (X_{t1} - X_{tn}) / X_{t1} |$ the difference between the average of the samples analysed before, during and at the end of the proficiency test.

10. EVALUATION REPORT

Once received and statistically evaluated all of the participating laboratories results, TestQual will send a final report that summarizes the participation of each laboratory.

This final report will be received by the laboratories via e-mail in PDF format or an email notifying that the report is now available to be downloaded from the private area of each participant in www.TestQual.com.

If desired, the laboratory may request the report in paper, and it will be sent to its laboratory by mail.

In the event that a participant wishes to appeal against the assessment program performance, a written appellation must be sent by e-mail to jpnavarro@testqual.com explaining the reasons for it.

30 days will be available after issuing the final report to inform of any mistake or to appeal against the evaluation, after that time and once all appellations have been reviewed, those that were justified, a new revision of the evaluation report would be issued. This does not impede that new revisions might be issued if deemed necessary, always being communicated to the participants if a new revision is available.

11. CONTACT

TestQual puts at your disposal any of the following means to contact our team:

Website:	Contact
Email:	jpnavarro@testqual.com
Office phone:	+34 868 94 94 86
Mobile phone:	+34 676 367 555

12. REFERENCES

TestQual Proficiency Testing Schemes are based on the following standards:

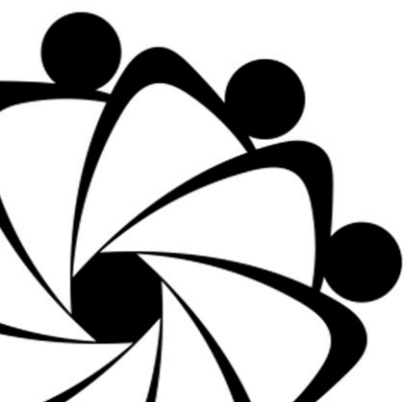
UNE-EN ISO/IEC 17043, first edition 2010-02-01. Conformity assessment- General requirements for proficiency testing.

ISO13528:2015, second edition 2015-08-01. Statistical methods for use in proficiency testing by interlaboratory comparison.

THE INTERNATIONAL HARMONIZED PROTOCOL FOR THE PROFICIENCY TESTING OF ANALYTICAL CHEMISTRY LABORATORIES

EU Pesticides database (v.2.2) Search Pesticides residues

SANTE/12682/2019, 1st January 2020, Guidance document on analytical quality control and method validation procedures for pesticides residues analysis in food and feed.



END OF DOCUMENT