

Present situation of the inspection of sprayers in use in Spain

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1. Introduction

The first voluntary inspections in Spain were carried out in the eighties for the sprayers used in integrated pest management schemes and later on under the Eurepgap or other certification programmes. These inspections were usually made directly or managed by public institutions.

At present, the total number of sprayers to be inspected all over the country is not known. From 2009 on, the official registration of all application equipment, both new and in use, is compulsory. For sprayers in use a simplified method has been agreed, since the technical documents of the machine are usually not available. The Ministry of Agriculture is in charge of this official list, which is managed by the regional authorities. So far, around 170000 sprayers are included, but it is believed that the total number must be much higher.

Besides of giving information about the numbers, this official registration allows to know the geographical distribution of the sprayers (Fig. 1), and this is an important tool for the management of the inspection programme. As an example, Fig. 1 shows the distribution of sprayers in Catalunya, in the North East of Spain. When implementing the inspection scheme, it has to be assured that all the sprayers can be inspected, close to the place where they are located.

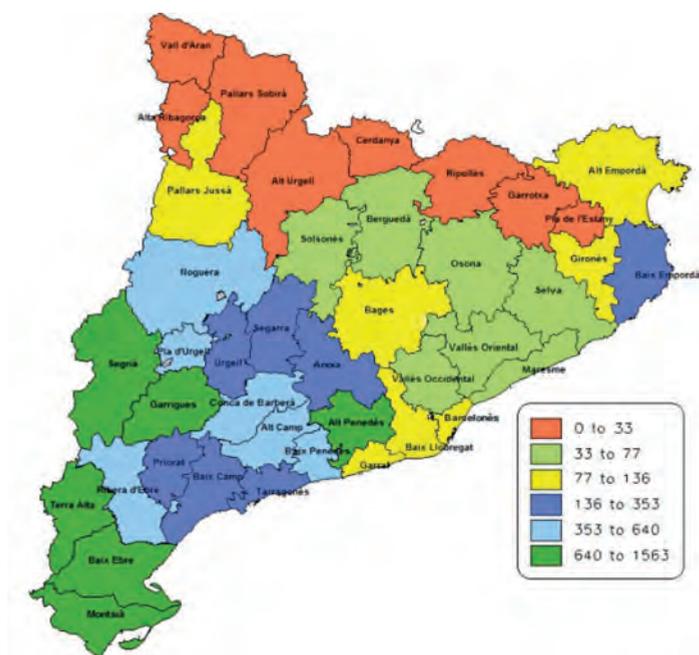


Fig. 1. Geographical distribution of the sprayers in use in Catalunya (October 2014).

2. The European Directive for the sustainable use of pesticides and the Spanish law

As it is established in the 2009/128/CE directive, at the end of 2012 the Spanish National Action Plan, was sent to the European Union. There, it is said that the inspections of sprayers in use will be made according to the Spanish Act “RD1702/2011”, which is the way the European directive has been adopted in the Spanish legislation.

Although the Spanish Plant Protection Law from 2002 already included the inspection of agricultural sprayers, the date of the publication of the RD1702/2011 can be considered as the actual starting date for the compulsory inspection of sprayers in Spain. In fact, it was agreed by the Ministry, that the inspection programme would not be implemented till the publication of the European Directive.

The expertise that was acquired from the former voluntary inspections and from other European countries, which have been carrying out compulsory inspections for many years, has been very useful for the implementation of the current compulsory inspection scheme, although they have to be adapted so that the inspection programme matches the local needs.

Sprayer operators that are used to voluntary inspections are more willing to participate in a compulsory programme, mainly if the requirements are similar. However other constraints can appear, like an increase in the price of the inspections, since voluntary inspections usually were free or only a low fee had to be paid.

The National Action Plan establishes which sprayer types are going to be included in the inspection programmes, and which are going to be excluded.

Application equipment included in the inspection programme:

Mobile application equipment for agricultural and other use

Horizontal boom sprayers

Sprayers for bush and tree crops

Pneumatic sprayers

Spinning disc sprayers

Dusters

Aerial application equipment

Application equipment for greenhouses and other indoor facilities

Application equipment excluded from the inspection programme:

knapsack sprayers

human-trailed trolley sprayers of a tank capacity of less than 100 l.

train-mounted sprayers

After 2020, all sprayers have to be inspected every 3 years. In the period between now and 2020, sprayer inspections have to be carried out every 5 years, except for contractors, who already have to carry out the inspections of their sprayers every 3 years. Finally, as it is stated in the directive, new sprayers have to be inspected the first time within the 5 years period after being sold.

3. Inspection workshops

In relation to the sprayer workshops (known with the ITEAF acronym), their staff will be composed of a director and an inspector, which have to pass a training course, besides of having the adequate background academic formation or professional expertise. In general, the sprayer manufacturers or dealers are not allowed to set up an ITEAF. The ITEAF is not allowed to repair the sprayer failures and the adjustment and calibration of the sprayers is not made either as a part of the sprayer inspection. The inspection fees are freely decided by every inspection workshop, according to the real costs, so they can change according to aspects like the kind of sprayer or the total number of sprayers to be inspected in a same place. There is no a tax that has to be paid for every inspection, as it is in other countries.

Inspections carried out in other countries by certified workshops will be recognized. Workshops authorized in other countries will also be acknowledged to carry out inspections in Spain. So far, there has not been any such application, so questions as the different validity periods in different countries have not yet arisen.

There is a software for the inspection of sprayers in use, PRITEAF (Fig. 2), which is provided to the inspection workshops by the Spanish Ministry. A data base with the results of the inspection will be available from the web page of the Ministry. It will give information about the defects encountered if the sprayer fails the inspection. No information about the technical characteristics of the sprayers is given in this data base, beyond the type and location of the sprayer. The use of the PRITEAF software by the inspection workshop will make easier the making of the data base.

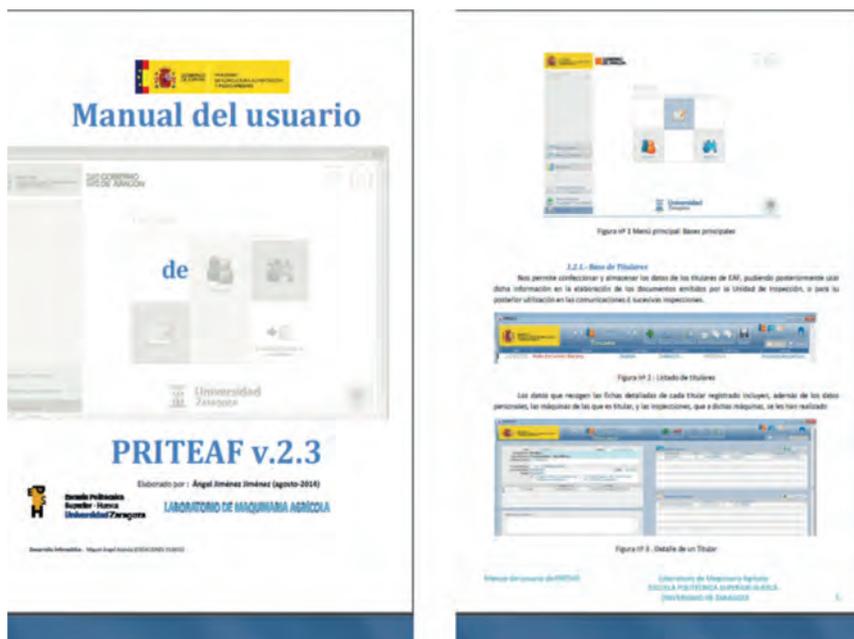


Fig. 2. Handbook of the PRITEAF software for the inspection of sprayers in use.

4. Organization of the inspections

Under the coordination of the Spanish Ministry, the regional governments are responsible for the organization of the inspections. At present, the main concern of the regional regulatory bodies is to assure that by the end of 2016, as established in the European Directive, all sprayers will be inspected at least once.

During 2013, 8 training courses for the workshop staff were carried out by different Universities all over Spain and 6 more are scheduled for 2014. At the same time, the first inspection workshops after the adoption of the Directive have been authorized (16 all over Spain, when writing this paper) and the first inspections have already been carried out in some regions. However, the number of sprayers inspected at the moment of writing this paper (end of 2014) is still very low in relation to the total amount of them.

The main constraints, which appear while implementing the inspection programme are the financial problems in some farms, which make difficult the payment not only of the inspection fees but also of the cost of the repairs that have to be made, so that the sprayer can pass the inspection. Besides, sometimes the advantages of the inspection are not well understood, and they are seen just as a new tax burden. The most important positive aspects to be considered by farmers are the pesticide savings, which derive from the increase of the application efficiency of the sprayers, and the safety of the operator.

5. Methodology for the inspections

Sprayer inspections are carried out according to the methodology established in the EN 13790:2003 standard. Now, this standard is updated with the new ISO EN 16122 series, so that, following a mandate of the European Commission, it will be harmonised with the 128/2009/CE Directive.

There is an inspection handbook, which is available from the webpage of the Ministry, that provides information on practical issues that can arise during the inspection. So it can be considered as a guideline that should be followed by the inspectors.

The contents of the handbook is based on the actual sprayer inspection standard. For every inspection item, the defects that make the inspection to fail are described by means of a detailed explanation and also with photographs. Some procedures for the inspection of application equipment like dusters of handheld guns, for which a standard has not been developed yet, are also included in the handbook.

6. Reference Laboratory

The designation of *Centre de Mecanització Agrària* as the National Reference Laboratory aims for a technical harmonization of the sprayer inspections carried all over Spain. Harmonization is a key issue, when there are more than 17 regional authorities responsible for the different inspection programmes.

The reference laboratory is in charge of the

- Technical harmonization of the sprayer inspections
- Methodology for the inspection, based on the new EN-ISO 16122 standards
- Guidelines for quality control of the inspection workshops
- Assessment of the methodology for sprayer inspections

So, the responsibilities of the reference lab are similar to organizations in other countries, like GIP pulves in France, JKI in Germany or SKL in Holland. They all have to give an answer to both technical and administrative questions related to the development of the inspection programme. This task is very important during the present period, when compulsory inspections have been started up and the programme has to be implemented.

The reference laboratory is also in charge of testing the different inspection methodologies and checking the inspection equipment. In this aspect, several tests for the assessment of the nozzle flow rate measuring equipment and the different methodologies for the measurement of the spray distribution in field crop sprayers (Fig. 3) are being carried out. The goal is to assess the inspection workshops on the best methodology for the inspections.

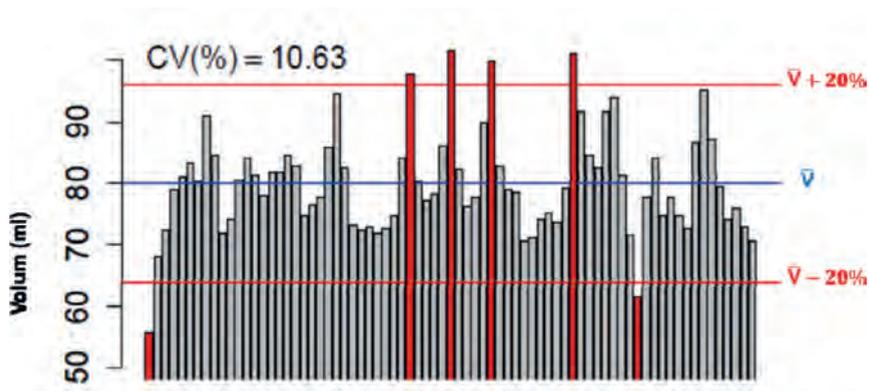


Fig. 3. Measurement of the spray distribution in a boom sprayer for the assessment of the spray inspection methodology.

Moreover, bearing in mind the publication of the new standards for the inspection of sprayers in use (EN-ISO 16122), it is planned to update the existing inspection handbook, in those aspects that will be new or will be changed in relation to the old standards.

It is also the responsibility of the reference laboratory to prepare a quality assurance scheme for the inspection workshops and also assessing them in the calibration procedures of the measuring equipment used in the inspections. In this way, it won't be compulsory for the inspection workshops to be certified by an official body, according to standards like ISO 17020, a procedure that small organizations, like most of the ITEAFs, cannot afford.