
**OBLIGATORY INSPECTIONS OF THE EQUIPMENT
TO PLANT PROTECTION CHEMICALS USING – LEGAL
REGULATIONS, TESTING PROCEDURES
AND CONTROVERSIES**

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A b s t r a k t

The aim of the paper is to present legal regulations, procedures and some statements concerning obligatory inspections of sprayers in Poland. There are inaccuracies and controversies related to these subject matter shown. It was found incorrect that in the testing procedure there is a paragraph, where the law allows two different, incomparable methods of sprayers functioning valuation. Substantial misstatements in the testing procedures are the reason why users of sprayers often express negative opinions about the whole system of the periodical investigations of the equipment to plant protection chemicals using.

**O B O W I ą Z K O W E B A D A N I A S P R Z Ę T U D O S T O S O W A N I A Ś R O D K Ó W O C H R O N Y R O Ś L I N –
U R E G U Ł O W A N I A P R A W N E , P R O C E D U R Y B A D A Ń I K O N T R O W E R S J E**

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S ł o w a k l u c z o w e : t e c h n i k a o p r y s k i w a n i a , o p r y s k i w a c z e , b a d a n i a o k r e s o w e .

A b s t r a k t

Celem pracy było zaprezentowanie regulacji prawnych, toku postępowania oraz spostrzeżeń, dotyczących obowiązkowych badań opryskiwaczy w Polsce. Przedstawiono nieścisłości oraz kontrowersje dotyczące tej problematyki. Uznano za niewłaściwe, że w procedurze badań opryskiwaczy polowych jest zapis, w którym ustawodawca dopuszcza dwie różne, nieporównywalne metody oceny funkcjonowania rozpylaczy. Zwrócono także uwagę, że nieścisłości merytoryczne w procedurze badań są często powodem negatywnej oceny przez użytkowników opryskiwaczy całego systemu obowiązkowych badań.

Introduction

Obligatory inspections of sprayers technical condition in Poland were initiated in 1999. Many users of sprayers wrongly connect that fact with Poland joining the European Union. In many of EU countries tests of sprayers are voluntary (Great Britain, Sweden, Austria, Portugal, Spain and France) or there is no system of periodical sprayers investigations at all (Ireland, Finland, Greece, Romania and Bulgaria) – after WEHMANN (2007). Therefore obligatory inspections of sprayers do not derive exactly from legal regulations in the European Union. EU machine directive in force defines fundamental requirements that fall within the domain of health care and safety of machines use, but the requirements of the directive concern every kind of agriculture machines in the same way.

Legal regulations

The obligation of sprayers technical state inspections comes out directly from the act about plant protection of the 12th July 1995 (Dz. U. z 1999 r., nr 66, poz. 751). According to the notations of the act, herbicides should be applied using strictly technically efficient equipment, which – if used appropriately – ensures effective killing harmful organisms and does not cause noisome effects on human's and animal's health or on environment. The act of the 1st January 1999 introduced obligatory inspections of the equipment to plant protection chemicals using (all types of sprayers, seed dressers etc.) which is in exploitation at agrarian producers in periods that not exceed two years. The regulation circumscribing detailed rules of the equipment to plant protection chemicals using inspections was enforced by the Ministry of Agriculture and Food Economy on the 11th February 1999 (Dz. U. nr 20, poz. 175).

In the previous period of sprayers inspections in Poland, the act about plant protection was amended twice. The first alteration to the act was executed on the 16th February 2001, with legal validity since the 25th July 2001 (Dz. U. nr 22, poz. 248). Amended act has ordered and specified many issues, which concerned particularly: requirements for the stations performing sprayers inspections, rules of the inspections, payments for the inspections and detailed technical requirements for sprayers. The obligation of testing new sprayers (introduced to trade) was imposed and the sprayers inspections were limited to tractor and self-propelled sprayers or fruit-growing sprayers only. Two years period between successive inspections was preserved. The weak point of the alteration was the fact that the regulation by the Ministry of Agriculture and Rural Development about sprayers inspections was published on the 15th

November 2001 (Dz. U. nr 137, poz. 1544). The time delay in publishing this regulation resulted that in the period between July and November 2001 there were no sprayers inspections performed, because of legal regulations missing.

The second alteration to the act about plant protection was enforced of the 18th December 2003 (Dz. U. z 2004 r. nr 11, poz. 94) with legal validity since the 1st May 2004, that is the date of Poland joining the European Union. In the subject matter concerning obligatory sprayers inspections there was only one change in amended act, it was the elongation of the period between consecutive sprayer tests up to three years.

Sprayers testing procedures

The procedure of sprayers testing consists of three stages:

1. The general inspection, where there is a visual valuation of the sprayer performed with drive turned off.

2. The inspection of the technical state of pump, agitator, container, measurement and control apparatus, liquid system, filters, field beam, atomizers and ventilator. The investigation of these subassemblies is performed twice: with drive of the particular elements turned off and on. In the first case there is a visual valuation executed, in the second case we use measurement and control equipment, in which – due to regulation by the Ministry of Agriculture and Rural Development of the 15th November 2001 (Dz. U. nr 137, poz. 1544) – every Station of Sprayers Inspection should be equipped.

3. Evidencing of the process.

The fact that in the sprayers inspections procedure there is many of control parts that are performed with sprayer drive turned off is sometimes interpreted as simplification that results in only rough valuation of sprayer (ZASIEWSKI, WIERZBICKI 1999). The procedure of sprayers inspections in Poland contains all important subassemblies (systems) of the sprayer and it has not significantly changed since the obligatory inspections were enforced. The only exception is the test of atomizers in field sprayers. During the period before the first amendment of the act about plant protection (1999-2001), the ending phase of the sprayer inspection was checking the distribution of transverse irregularity using the hand grooved table or the electronic table. After the act amendment (2001) it is also possible to test sprayers by checking the irregularity of liquid outflow from single atomizers at the whole length of the field beam.

Controversies

Since the day when the obligatory sprayers inspections were enforced, there is a discussion concerning this issue in Poland. The dispute concerns range of inspections, methods of specific sprayer's subassemblies tests and measurement equipment to be used during the investigations.

The range of obligatory inspections of sprayers technical state does not include the calibration of the sprayer. If sprayer is not calibrated, when there is only transverse irregularity checked, we can receive correct inspection result while the liquid dose would be overestimated (ZASIEWSKI, WIERZBICKI 1999). If the range of obligatory inspections is expanded with calibration, it will cause that sprayers investigations will have much more educative character. Authors experience acquired during the sprayers inspections indicates that the lack of skills is generally the reason why the calibration of sprayer is not performed. The opinions about the sprayers calibration in Poland and other European countries are divided (BALSARI et al. 2007, HOŁOWNICKI et al. 2007).

Most controversies of all is caused by the atomizers test, which can be performed using two different methods interchangeably: the first to valuate the transverse irregularity of liquid at the whole length of the field beam and the second to valuate the irregularity of liquid outflow from single atomizers at the whole length of the field beam. These methods are completely different and incomparable (SAWA et al. 2002). Poland is the only country in Europe, in which two methods are working at the same time – after HOŁOWNICKI et al. (2007). Furthermore, there are two criteria of verifying the distribution of transverse irregularity of liquid outflow. When testing sprayers using hand grooved table the criterion is the value of standard deviation ($\pm 15\%$) but when the test is performed using electronic table the criterion is the value of variability index (10%). The existing conjuncture is not the correct solution. In many European countries there are discussions concerning sprayers inspections. Unfortunately, discussions are frequently not based on logical arguments supported by scientific proofs (LANGENAKENS 2000, SAWA et al. 2002). It seems that the correct future solution should be hammering out the compromise, which brings together objectivity and recurrence of the tests with the guarantee of fulfilling quality requirements (after BALSARI et al. 2007).

The important element of sprayers equipment is the manometer indicating the working pressure value. During the manometer valuation we have to also check, due to regulation on technical requirements for sprayers by the Ministry of Agriculture and Rural Development of the 4th October 2001 (Dz. U. nr 121, poz. 1303), if the manometer has the proper scale. The scale

of the manometer is determined by the range of working pressure values and it is equal to: 0,02 MPa in range of 0-0,5 MPa; 0,1 MPa in range of 0,5-2,0 MPa and 0,2 MPa in range above 2,0 MPa. Acceptable values of single graduation on a manometer scale are too big, it particularly concerns pressure above 0,5 MPa. Furthermore, required kind of manometer is not connected with accuracy of manometer's reading (its class). It can result in big errors of working pressure value readings.

Statements and conclusions

1. In the obligatory system of sprayers testing procedures in Poland there were enforced changes, which have not always turned up in the executive regulations to the law. It is the reason why there was the time warp in inspections proceeding in 2001.

2. There is an improper paragraph in the field sprayers testing procedure, where the act allows two different – incomparable – methods of sprayers functioning valuation. There is no substantial reason for such notation.

3. In the author's judgement enforced changes in the law and some substantial misstatements – existing in the testing procedures – they are the reason why many farmers underestimate the whole system of obligatory sprayers inspections in Poland. The system is often perceived as inconvenient necessity.

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