**The Pesticides Law under the Optics of Rural Producers**

**TABLES**

**Table 1 – Distribution and grouping of the questions on the form applied to the rural producers**

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| **Construct** | **Nº** | **Questions** |  **Legal Basis** |
| A – Return empty packages in accordance with the instructions received at the commercial establishment where the pesticide was purchased or the collector stations. | P-01 | I am always informed there is a requirement to return the empty packages of agricultural pesticides.  | Art. 7º, II, “d” of Law 7.802/1989 and Art. 53 of Decr. 4.074/2002 |
| P-02 | I read the instructions on the leaflets and labels of agricultural pesticides before using them. | Art. 6º § 2º; Art. 7º, IV of Law 7.802/1989 and Art. 52 of Decr. 4.074/2002 |
| P-03 | I read the instructions on the leaflets and labels of agricultural pesticides for the return of the packages. | Art. 6º § 2º of Law 7.802/1989 and Art. 52 of Decr. 4.074/2002 |
| P-08 | I always return the packages to the address indicated on the purchase invoice. | Art. 53 § 2º of Decr. 4.074/2002 |
| P-09 | When I have out-of-date agricultural pesticides, I return them. | Art. 6º § 2º of Law Lei 7.802/1989 and Art. 53 § 4º of Decr. 4.074/2002 |
| P-10 | I always pay the costs to transport the packages to the collector station. | Art. 6º § 2º of Law 7.802/1989 and Art. 53 of Decr. 4.074/2002 |
| P-12 | I always return the empty packages of agricultural pesticides to the retailers where I purchased them. | Art. 6º § 2º of Law 7.802/1989 and Art. 53 of Decr. 4.074/2002 |
| B – Perform the triple washing of the empty packages, necessary preparation and storage on the rural property before returning the packages. | P-04 | I have been informed about the need to prepare the packages for correct disposal. | Art. 6º § 4º of Law 7.802/1989 and Art. 53 § 5º of Decr. 4.074/2002 |
| P-05 | I have been informed that I need to store them temporarily in appropriate locations on my property. | Art. 6º of Law 7.802/1989 and Art. 53 of Decr. 4.074/2002 |
| P-06 | During purchase, the retailer gives instructions on washing, packaging, storage, transportation and return of the packages. | Art. 7º, II, “d” of Law 7.802/1989 and Annex IX in the Decr. 4.074/2002 |
| P-07 | I disable the package right after triple washing it. | Art. 7º, II, “d” of Law 7.802/1989 and Annex IX in the Decr. 4.074/2002 |
| P-17 | I triple wash the packages when told to do so in the leaflet instructions. | Art. 6º § 3º of Law 7.802/1989 and Art. 53 § 6º of Decr. 4.074/2002 |
| C – Keep available for the inspection agencies the return receipts of empty packages. | P-11 | The Collector Station always gives me a receipt for packages returned. | Art. 53 § 3º and Art. 55 of Decr. 4.074/2002 |
| P-13 | I keep archived for inspection purposes the purchase invoices and return receipt for the empty packages. | Art. 53 § 3º of Decr. 4.074/2002 |
| P-14 | When I make a new purchase of agricultural pesticide, I am charged by the retailer for the empty packages from the last purchase. | Art. 19 sole paragraph of Law 7.802/1989 |
| P-15 | I am regularly inspected regarding the storage, transportation and return of empty packages of agricultural pesticides. | Art. 12A of Law 7.802/1989 |
| P-16 | I am aware of the penalties applied for inadequate disposal of the empty packages. | Arts. 14 and 15 of Law 7.802/1989 |

**Source: The authors, based on the legislation**

**Table 2a: Situations of Cross-tab with Chi-Square < 0.05**

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| --- | --- | --- | --- |
| **Evaluated Question** | **Crossover** | **Chi-Square** | **Analysis** |
| P-1 – I am always informed there is a requirement to return the empty packages of agricultural pesticides. | How often I return packages. | 0.006 | There is consistency in the responses because for the 16 who fully agreed about having known about the requirement to return empty packages, at least 11 said that they return them and of the 13 who disagreed, six responded that they do not return them and seven vary in their return timing, showing uncertainty in return. |
| P-4 – I have been informed about the need to prepare the packages for correct disposal. | How often I return packages. | 0.003 | There is also some consistency here because for the 35 who agreed and/or fully agreed about having information about the need to prepare the packages for correct disposal, 22 said they return them even if their timing in doing so varies. Of those who disagreed or were indifferent, the majority said they do not return the packages. |
| P-6 – During purchase, the retailer gives instructions for washing procedures, packaging, storage, transportation and return of the packages. | How often I return packages. | 0.018 | There is consistency in the responses as 11 of those who agreed or fully agreed about receiving instructions for washing procedures, packaging, storage, transportation and return of the packages, nine said they return them, and of the 30 who disagreed or fully disagreed, 18 said they do not return them, and seven said their return timing varies. |
| P-8 – I always return packages to the address indicated on the purchase invoice. | How often I return packages. | 0.006 | The nine who agreed or fully agreed when asked always return packages to the address indicated on the purchase invoice, all said they return packages even if their timing varies, and of the 26 who disagreed or fully disagreed, 20 strongly stated they do not return them. |

**Source: Research data**

**Table 2b: Situations of Cross-tab with Chi-Square < 0.05**

|  |  |  |  |
| --- | --- | --- | --- |
| **Evaluated Question** | **Crossover** | **Chi-Square** | **Analysis** |
| P-10 – I always pay the costs to transport packages to the collector station. | How often I return packages. | 0.000 | There is accentuated consistency in the responses, as of the seven who agreed or fully agreed about paying the costs to transport packages to the Collector Station, all said they return them; and of the 34 who disagreed or fully disagreed, 16 said they do not return packages, and 11 said their return timing varies. |
| P-10 – I always pay the costs to transport packages to the collector station.  | Cultivation group. | 0.018 | There is a balance in the producers distribution among types of cultivation, with 18, 16 and 14, respectively, in temporary culture, horticulture and permanent culture. Additionally, of the 30 who fully disagreed about paying the costs to transport packages to the Collector Station, 8, 12 and 10, respectively, are in temporary culture, horticulture and permanent culture. |
| P-10 – I always pay the costs to transport packages to the collector station. | Segmentation of the area by IBGE. | 0.032 | There is a certain proportionality among the responses regarding paying the costs to transport packages to the Collector Station and the size of the harvested area, as of the 30 who fully disagreed, 23 cultivate areas smaller than five hectares, which suggests that, for them, the cost of empty package transportation is high, so they tend, when they return packages, to use favors from other large-sized producers, as noted in the responses when the data collection was performed. |
| P-12 – I always return the empty packages of agricultural pesticides to the retailers where I purchased them. | How often I return packages. | 0.021 | There is consistency in the responses, as 27 of those who responded that they disagreed or fully disagreed about returning packages to the retailers, 17 responded they do not return them and the other eight that their timing of return varies. Of the four who responded that they completely agreed about returning packages, all said that they return packages between one and two years from the date of purchase. |
| P-13 – I keep archived for inspection purposes the purchase invoices and the return receipts for empty packages. | How often I return packages. | 0.016 | Of 25 who disagreed or fully disagreed about keeping, for purposes of inspection, the purchase invoices and the package return receipts, 15 said they do not return packages and eight said that their timing of return varies. However, of 17 who agreed or fully agreed about keeping the invoices and return receipts, 11 said they return them even if their timing in doing so varies. |

**Source: Research data**

**Table 2c: Situations of Cross-tab with Chi-Square < 0.05**

|  |  |  |  |
| --- | --- | --- | --- |
| **Evaluated Question** | **Crossover** | **Chi-Square** | **Analysis** |
| P-14 – When I make a new purchase of agricultural pesticide, I am charged by the retailer for the empty packages from the last purchase. | How often I return packages. | 0.043 | Of 42 who fully disagreed about being charged by the retailer for empty packages from the last purchase, 21 said that they do not return packages and 12 that their timing of return varies. Of five who agreed or fully agreed about being charged by the retailer, four said that they return packages. |
| P-16 – I am aware of the penalties applied for inadequate disposal of empty packages. | How often I return packages. | 0.012 | Of 30 respondents who agreed or fully agreed about knowing the penalties for the inadequate disposal of empty packages, 11 do not return them, and 12 said that their timing of return varies. In contrast, of 14 who disagreed or fully disagreed about knowing the penalties, seven do not return packages. |
| P-16 – I am aware of the penalties applied for inadequate disposal of the empty packages. | Segmentation of the area by IBGE. | 0.043 | There is a certain balance between the responses regarding knowing the penalties for inadequate disposal of empty packages and the size of the harvested area, as of the 30 who agreed or fully agreed, 19 cultivate areas smaller than five hectares. Of the 14 who disagreed or fully disagreed, 10 also cultivate areas smaller than five hectares. This leads us to consider that for them (the small producers), the responsibility is more keenly felt. |

**Source: Research data**

**Table 3 – Frequency of returning empty pesticide packages**

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| --- |
| **How often do I return packages?** |
|  | **Frequency** | **Percentage** | **Valid Percentage** | **Accumulative Percentage** |
|  | **More than once per year** | 12 | 25 | 25 | 25 |
| **Once every 1-2 years** | 2 | 4.2 | 4.2 | 29.2 |
| **Varies** | 12 | 25 | 25 | 54.2 |
| **Do not return** | 22 | 45.8 | 45.8 | 100 |
| **Total** | 48 | 100 | 100 |  |

**Source: Research data**

**Table 4 – The results of the statistical analysis**

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| --- | --- | --- | --- | --- |
| **Comparative cases** | **May or may not return packages****(%)** | **Tendency to not return packages****(%)** | **Performed analysis** | **Percentage tendency to not comply with the legislation****(%)** |
| **Nogueira and Dantas (2013)** | 37.5 | 62.5 | The study reports that 37% return, 53.1% burn and 9,4% keep or throw away packages. | 62.5 |
| **Lima et al (2009)** | 20 | 80 | The study shows that 80% keep packages and may or may not return them. | 80 |
| **Vezzali (2006)** | 33.4 | 66.6 | It is established that of nine properties visited, six received a fine for not returning packages. | 66.6 |
| **IBGE (2005)** | 38.1 | 61.9 | The statistics show that 600 municipalities had places to receive the packages and 978 disposed of them in open-air dumps. | 61.9 |
| **Our research** | 25 | 75 | The Cross-tab determined that only 25% of the respondents had a tendency to comply with the legislation, with their responses consistent. | 75 |

**Source: Research data interpreted by the author**