

摘要

近年来，随着农业机械化的发展，肥料也越来越重要，肥料是农业生产中一种重要的生产资料。肥料是指提供一种或一种以上植物必需的营养元素，改善土壤性质、提高土壤肥力水平的一类物质，是农业生产的物质基础之一。主要包括磷酸铵类肥料、大量元素水溶性肥料、中量元素肥料、生物肥料、有机肥料、多维场能浓缩有机肥等。肥料临时登记证有效期为一年。肥料临时登记证有效期满，需要继续生产、销售该产品的，应当在有效期满两个月前提出续展登记申请，符合条件的经农业部批准续展登记。续展有效期为一年。续展临时登记最多不能超过两次。肥料正式登记证有效期为五年。肥料正式登记证有效期满，需要继续生产、销售该产品的，应当在有效期满六个月前提出续展登记申请，符合条件的经农业部批准续展登记。续展有效期为五年。登记证有效期满没有提出续展登记申请的，视为自动撤销登记。登记证有效期满后提出续展登记申请的，应重新办理登记。肥料产品包装应有标签、说明书和产品质量检验合格证。标签和使用说明书应当使用中文，并符合下列要求：

- （一）标明产品名称、生产企业名称和地址；
- （二）标明肥料登记证号、产品标准号、有效成分名称和含量、净重、生产日期及质量保证期；
- （三）标明产品适用作物、适用区域、使用方法和注意事项；
- （四）产品名称和推荐适用作物、区域应与登记批准的一致；

禁止擅自修改经过登记批准的标签内容。

生产与销售需要遵守以下规章制度：

（一）生产、销售未取得登记证的肥料产品；

（二）假冒、伪造肥料登记证、登记证号的；

（三）生产、销售的肥料产品有效成分或含量与登记批准的内容不符的。

为了更好地对肥料的登记与销售进行合理合法地管理，我们对此数据进行处理与分析，得到关于肥料养分和出产地还有生产日期等信息。对这些数据进行整合分析，对我们在未来肥料统计登记和销售方面都意义重大。

Abstract

In recent years, with the development of agricultural mechanization, fertilizer is also more and more important, fertilizer is an important means of production in agricultural production. Fertilizer is a kind of material that provides one or more essential nutrients for plants, improves soil properties and improves soil fertility level, and is one of the material bases of agricultural production. It mainly includes ammonium phosphate fertilizer, mass

element water-soluble fertilizer, medium element fertilizer, biological fertilizer, organic fertilizer, multi-dimensional field energy concentrated organic fertilizer, etc. The temporary fertilizer registration certificate is valid for one year. If it is necessary to continue the production and sale of the products after the expiration of the temporary fertilizer registration certificate, it shall apply for renewal of registration two months before the expiration of the temporary fertilizer registration certificate, and the extension of registration shall be approved by the Ministry of Agriculture if it meets the conditions. Renewal is valid for one year. Temporary registration can not be renewed more than twice. The fertilizer registration certificate is valid for five years. If it is necessary to continue the production and sale of the fertilizer after the expiration of the formal registration certificate, an application for renewal of the registration shall be submitted six months before the expiration of the formal registration certificate, and the extension of registration shall be approved by the Ministry of Agriculture if it meets the conditions. Renewal is valid for five years. Where no

application for renewal of registration is made at the expiry of the validity period of the registration certificate, the registration shall be deemed to be cancelled automatically. Where an application for renewal of registration is made after the expiration of the registration certificate, a new registration shall be made. Packaging of fertilizer products shall have labels, instructions and product quality inspection certificate. Labels and instructions shall be in Chinese and shall meet the following requirements:

(1) indicating the name of the product and the name and address of the manufacturer;

(2) indicating fertilizer registration certificate number, product standard number, name and content of active ingredients, net weight, production date and quality guarantee period;

(3) indicate applicable crops, applicable regions, methods of use and matters needing attention;

(4) The name of the product and the recommended applicable crops and regions shall be consistent with those approved in the registration; Unauthorized modification of label content approved by registration is prohibited.

Production and sales shall comply with the following rules and regulations:

(1) Producing or selling fertilizer products without registration certificates;

(2) forging or forging fertilizer registration certificate and registration certificate number;

(3) The effective ingredients or content of fertilizer products produced or sold are not in conformity with those approved in the registration.

In order to better manage the registration and sale of fertilizer reasonably and legally, we processed and analyzed the data to obtain information about fertilizer nutrients, origin and production date. The integration and

analysis of these data will be of great significance to our fertilizer registration and sales in the future.

For task 1, missing value processing, outlier value processing, repeated value processing and normalized processing are required for this data analysis and processing. We need to use Python for preliminary data analysis. Missing values are first handled using the `isna` function in pandas. Secondly, on the basis of filling the missing value of outlier data set, and this time we need to deal with the standardization of processing is the condition of the non-standard product general name, for the standardized data we adopt a different approach, for the high importance of data, combined with the data and to fill the rest of the data processing, Delete data with low importance or less impact on the actual analysis process. Finally, delete duplicates using the PANDAS `drop_duplicates` function. Finally, the sum of nutrient percentages of nitrogen, phosphorus and potassium of each fertilizer product was calculated based on the results of treatment, which provided ideas, processes and necessary results for the following report.

For task 2, firstly, we screened the compound fertilizer products, divided them into 10 groups isometric according to the value of inorganic nutrient percentage, and drew an intuitive histogram according to the grouping of different products, and gave the ideas and process. We sorted the products in descending order to find the top three groups with the largest number of registrations. Then, we screened the organic fertilizer products. According to the percentage of total inorganic nutrients and organic matter. Divide into ten groups and label them one by one. The horizontal axis represents the grouping of inorganic nutrients, and the vertical axis represents the grouping of organic matter. They are sorted in descending order to find out the top three groups and the number of registered products. Finally, we screen out nitrogen, phosphorus and potassium nutrients in accordance with the percentage. Compound fertilizer products. In the use of clustering algorithm, the products are divided into four categories, labeled in turn, finally draw the three-dimensional point map and point map matrix of fertilizer products, in the

radar map of the result to get the characteristics of each cluster.

In task 3, according to different years in the compound fertilizer material product registration number change trend to use visual screen will result in the form of charts show, to provide data for the following analysis, and then through the charts of guangxi and huzhou product registration number by descending order, list the top five, analysis of the results of the gap between two provinces,

Finally, the result is calculated by The Jeckard similarity coefficient matrix. According to the raw materials used by the enterprise as a feature, the product analysis results are presented in the form of charts.

For task 4, first of all, we need to draw a chart for analysis according to the percentages of nitrogen, phosphorus, potassium nutrients and organic matter mentioned in the technical indicators, as well as the degree of nitrogen contained in the fertilizer. The abscissa indicates the name and percentage of raw materials,

and the ordinate indicates the ordinate, which are divided into ten groups for analysis and data processing results.

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产品登记数量	2098	1501	1154

4、任务三

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6、参考文献

[1]肥料登记管理部分，第二十三条.

[2]肥料登记管理部分，第二十四条.

[3]肥料登记管理部分，第四十五条.