Academic Journal of Engineering and Technology Science
ISSN 2616-5767 Vol.3, Issue 7: 108-113, DOI: 10.25236/AJETS.2020.030711

Development thinking based on the current situation of pesticide application technology and equipment in my country

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ABSTRACT. *Explains the application of mechanized pesticide application technology and equipment in agricultural production in my country. It analyzes the current status of application technology and plant protection machinery technology in my country (Including plant protection machinery ownership, usage status, industry status, R&D status, development trend Potential, etc.), proposed development ideas based on the current situation of my country's pesticide application technology and equipment.*

KEYWORDS: *pesticide application technology; plant protection machinery; current situation; development*

1. Introduction

Under the condition of solving the problem of mechanized operation of crop farming and harvesting, Mechanized pesticide application technology and equipment are essential in the agricultural production process. The important links and its special role have attracted attention from all parties.

2. My country's mechanized pesticide application technology and equipment in agricultural production Status

2.1 It is an integral part of the comprehensive agricultural production capacity, and an important part to realize agricultural security

Comprehensive agricultural production capacity is stable under certain conditions. The level of comprehensive agricultural output and agricultural competitiveness achieved are an important part of productivity, it is also a major indicator to measure the overall level of agricultural production and rural economic strength of a country or a region.

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2.2 It is a necessary condition to realize people-oriented, environmental protection and harmonious development

The technical level of plant protection machinery and pesticide application in my country is seriously lagging behind. It only caused a huge waste of pesticides, and due to excessive pesticide spraying, Cause problems such as excessive pesticide residues in agricultural products and environmental pollution, which are serious .Threatening food safety production. In order to ensure food production, various regions have launched. The only way to prevent a big battle is to fight with drugs: three times with insects and three times without insects. hit! The abuse of pesticides is contrary to the concept of "green, safe and environmentally friendly". It can be seen that strengthening agriculture. Research and development of new technology and new equipment for industrial application technology and equipment, People-oriented, the inevitable requirement of the harmonious development of society. According to the survey, the main factors of agricultural non-point source pollution (fertilizer loss, Pesticide loss, agricultural mulch film, agricultural production residues), pesticide flow Loss has a direct impact on the agro-ecological environment, the harm is obvious, covering food Goods, soil, atmosphere, and long-term accumulation will endanger children and grandchildren generation. The main reasons for the serious pollution of agricultural ecology caused by the loss of pesticides:

1) The pesticide application technology is backward, the pesticide dosage is large, and the effective utilization rate is low. Generally only 20%~30%;

2) The pesticide application machinery is backward and the degree of mechanization is low. Affect the control effect, it is difficult to adapt to large-scale control;

3) No corresponding Application technical specifications and application regulations, unreasonable overuse of pesticides causes the resistance of pests and diseases, forming a vicious circle. Pesticides, pesticide applicator. Art and application equipment, the three complement each other to form a complete application

2.3 It is a technical guarantee to improve the international competitiveness of agricultural products

China has formally joined the WTO. The relevant WTO agreements. The quality of Chinese agricultural products and standardized production levels pose new challenges. International Trade Organization ISO issued environmental protection certification as early as 1995.ISO14000 series of standards. This will have a major impact on the quality of my country’s agricultural products. Even if agricultural products have achieved ISO9000 international quality management Series standard certification, but has not yet obtained ISO14000 international environmental series. If the standard is related to certification, the other party can still use "green barriers" to restrict us.

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3. Development trend of foreign application technology and equipment

3.1 The development trend of foreign pesticide application technology

From the perspective of the development trend of world plant protection technology, there will be a long one in the future. During this period, chemical control will still be the main focus. In terms of pesticides, Xiang Guang. Spectral, high efficiency, low toxicity, low residue development, variety increase, yield decrease

Less; application technology to improve the adhesion rate of pesticides on crop targets, reduce The goal is to reduce the sedimentation of pesticides on the ground and the drift in non-treatment areas .Develop precision spraying technology; spraying machinery towards high-efficiency, safe, precise targeting, Automated and intelligent development. Key development and application of new pesticide application technology.

3.2 The development trend of foreign pesticide application machinery

The development trend of pesticide application machinery is: high efficiency and safety, precision on target, Automated and intelligent. With the emergence of the above-mentioned new pesticide application technology, many famous plant protection machinery manufacturers in the world have developed dryland pneumatic auxiliary

Boom sprayer, all kinds of electrostatic sprayer, recycling sprayer, Automatic target sprayer and remote control using microwave or infrared sensor technology Helicopters for plant protection, etc.; at the same time, anti-floating nozzles, constant pressure anti-drip equipment. The technology of waiting for the key components of precise application has matured and is applied among the related pesticide application machinery, the application technology and machinery are towards precision. Transformation. In 1996, about 19% of North America’s scale of over 300hm2. The chemical farm has used GPS technology to implement aircraft application operations. University of Australia Leah recently developed a sprayer that can identify weeds. It's in the field. When moving between time, special electronic sensors can be used to distinguish crops. And weeds, when only weeds are found, the herbicide is sprayed. The herbicide input is only 1/10 of the conventional dosage, or even lower. Nice National FMC company uses computer control system for orchard sprayer. The system uses ultrasonic sensors to determine the shape of the fruit tree, computer controlled. The system enables the pesticide spray characteristics to always be adjusted according to the shape of the fruit tree. Dynamic adjustment to achieve the best control effect with the most economical application rate.

4. Status and development trend of domestic pesticide application technology

My country is a big country in the production and use of pesticides. According to

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statistics, the annual pesticide usage is around 1.3Mt. Outdated pesticide application technology is one of the key factors causing agricultural three-dimensional pollution, backward pesticide application. Technology and medical equipment lead to: The effective utilization rate of pesticide use is only 20%~Around 30% (up to 60%~70% in developed countries).

5. Status and development trend of domestic pesticide application equipment

5.1 Possession of plant protection machinery

5.1.1 Manual plant protection machinery.

According to statistics from the agricultural department, manual plant protection. There are about 35 types of machinery and about 58.799 million machines in the society. By Because of its simple structure and low price, it is suitable for the vast rural areas of our country. The purchasing power of the plant protection equipment, so the market coverage is very large, accounting for approximately 80% of the country's market share is responsible for the country's agricultural diseases, Over 70% of the pest and weed control area.

5.1.2 Motorized plant protection machinery. Knapsack motorized sprayer and knapsack

There are about 8 varieties of motorized spray powder dusters, with a total of about2.617 million units; the number of stretcher-type motorized sprayers is approximately 168,200; And electric sprayers in possession of 253,500 units; tractor-mounted.

5.2 Current status of plant protection machinery

"Using a model to prevent and control various crops "Hundred drugs everywhere" is more common. This is caused by the large amount of drugs used. Pesticide waste, environmental pollution, excessive residues in agricultural products, operation the main reason for many problems such as person poisoning. The only pesticide sprayed 20%~30% is sprayed on crops, and most of the remaining pesticides are spread to Farmland, waters, air, caused environmental pollution, or caused agricultural Increase in pesticide residues in products. New-type pesticide application machinery can improve agricultural Drug utilization rate, but due to policy, price and other issues, Very small, even in large-scale farms, advanced new plant protection The use of machinery is also very small, and it is difficult to promote.

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5.3 Status quo of plant protection machinery industry

The plant protection machinery industry is dominated by small and medium-sized enterprises, and the number is about 400. On the right, knapsack sprayers include knapsack electric sprayer manufacturers There are more than 160 companies in the industry, more than 110 manufacturers of knapsack spray powder machines, More than 10 manufacturers of motorized sprayers, producing pumps for motorized sprayers More than 40 companies, more than 20 fog machine manufacturers, spray bar spray. There are more than 40 plant protection machinery manufacturers, and other plant protection machinery manufacturers (such as mosquito Lamps, electrostatic ultra-low volume sprayers, etc.)

5.4 Status of research and development of plant protection machinery

In recent years, through the "Ninth Five-Year" and "Twelfth Five-Year" scientific and technological breakthroughs, Adopting international advanced spraying technology, developed a batch of new spraying machines Tools, such as high-efficiency wide-range long-range motorized sprayer series, air-driven Function remote sprayer, poplar high-range sprayer, for crops in the shed Normal temperature fog machine, etc., have good technical performance.

5.5 Development Trend of Plant Protection Machinery Accurate and high-efficiency

The development of industrial machinery and tools has the following characteristics: ① Increase in product variety Plus, the degree of specialization has increased. For different crops, different regions, Develop corresponding plant protection machinery for different planting systems; ②Plant protection machinery and The degree of serialization of its parts and components has increased, which has increased the application coverage of products. Cover surface, can meet the different spray requirements of various crops and chemicals, At the same time, the spraying quality is greatly improved; ③Actively adopt new technologies to improve High technical level and technological content of plant protection machinery products.

6. Conclusion

Pesticide application machines will become the trend, pesticide application machinery to high efficiency, safety, precision, targeting, and intelligence Development, focusing on providing specific operations for specific crops and specific cropping systems

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