

CONTROL AND MONITORING OF CABBAGE PESTS

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in monitoring and forecasting in plant protection

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Abstract. *There is a significant difference in pesticide spray frequency during wet and dry seasons, with more frequent sprays during the wet season. Wholesale markets still play an important role in marketing of fresh produce despite the increasing role of supermarkets in the food chain. Current regulations on pesticide residue monitoring were only applied at the farm gate and any penalties are directed at the growers. The origin of fresh produce could only be traced up to the wholesaler. Therefore, it is less effective to impose pesticide monitoring at the retailer level, as the origin of the produce could not be traced, nor could feedback to producers be achieved. This article describes with control and monitoring of cabbage pests.*

Keywords: *Cabbage, pesticides, toxicity, food chain, monitoring.*

БОРЬБА И МОНИТОРИНГ ВРЕДИТЕЛЕЙ КАПУСТЫ

Аннотация. *Существует значительная разница в частоте распыления пестицидов в сезон дождей и засухи, причем в сезон дождей распыление происходит чаще. Оптовые рынки по-прежнему играют важную роль в маркетинге свежих продуктов, несмотря на растущую роль супермаркетов в продовольственной цепочке. Текущие правила мониторинга остатков пестицидов применялись только у ворот фермы, и любые штрафы были направлены на производителей. Происхождение свежих продуктов можно было проследить только до оптового торговца. Таким образом, менее эффективно навязывать мониторинг пестицидов на уровне розничных продавцов, поскольку невозможно отследить происхождение продукции и получить обратную связь с производителями. В данной статье описаны меры борьбы и наблюдения за вредителями капусты.*

Ключевые слова: *Капуста, пестициды, токсичность, пищевая цепь, мониторинг.*

INTRODUCTION

Concerns are growing about the long-term environmental impact of vegetable production in Uzbekistan, particularly the heavy use of pesticides that are hazardous to local health, pesticide residues for consumers, increased resistance, and environmental pollution. These problems are increasing interest in alternative control methods such as integrated pest management, crop rotation, and biological control. New technologies such as transgenic crops are overcoming the problem of resistance. However, many transgenic crops are derived from the Bt Cry toxin, and if pests develop resistance to the Bt Cry toxin due to high selection pressure, the use of transgenic crops may be short-lived. Another major problem with the heavy use of pesticides is pesticide residues in fresh produce and vegetables that enter the food chain. High levels of pesticide residues have been detected in vegetables due to over-reliance on the use of pesticides to control pests and achieve a high-quality product appearance.

LITERATURE ANALYSIS AND METHODOLOGY

In Uzbekistan, some use integrated pest management, while others depend only on the scheduled use of pesticides. There are reports of adverse effects of pesticides on humans, including acute and chronic health problems, wild birds, mammals, fish, bees, beneficial organisms, and through contaminated soil and water. Pesticides have many active ingredients and

each has different effects on human health and the environment. Thus, the potential impact of specific pesticides used by farmers on human health and the environment was estimated using the developed Environmental Impact Quotient (EIQ) concept. EIQ values are based on the potential exposure of active ingredients to farm workers, consumers, and the environment. Potential risk assessments for pesticides are based on toxicity parameters (LD50 or LC50), potential exposure parameters (eg, half-life, leaching or leaching potential), and pattern of use. Toxicity and exposure indices were evaluated on a scale of 1 to 5. The total potential exposure can be calculated by summing the EIQ values for all applications.

RESEARCH RESULTS

Farmers rarely have formal education in farm management, with only 1% of farmers having received training in agriculture; for others, their knowledge comes mostly from experience with their parents, working on other farms, or asking other farmers. Among farmers, 65% have more than 15 years of experience, the highest percentage with this level of experience is 94%. Most farmers (67%) grow one or two types of vegetables at the same time. After cabbage, the most popular vegetables grown are tomatoes, Chinese cabbage, onions, beans, radishes and other similar crops.

Farmers have been found to use up to 21 different insecticides on cabbage, but some products have the same active ingredient but are sold under different trade names. Less commonly used insecticides are Matches, Impacts (acephate) and Dipterexs (trichlorfon). Farmers usually apply several types of insecticides during the cropping season. The largest percentage of farmers use 3-4 types of insecticides in the same cropping season or in the previous cropping season. Only 4% of farmers use 7-8 types of insecticides to control cabbage pests in one season.

Cabbage production costs include land rent, manure, fertilizer, pesticides, irrigation, tractor use, and labor. Manufacturers do not provide detailed information about the cost of each individual factor. Therefore, the cost is estimated only as the total value of the product produced in their farms. As the total size of farms increases, production costs decrease. This may be due to high fixed cost factors such as the use of tractors, which provide high efficiency in large farms.

CONCLUSION

In pest control, farmers rely on pesticides, with quantities applied often being independent of infestation levels. The economic benefits aside, cabbage is a good source of many minerals particularly calcium and potassium, and is also relatively high in vitamins A and C. Cabbage, like other brassicas contains mustard oils, compounds that inhibit the growth of cancer. These substances boost the body's production of the enzymes that disable potential carcinogens and then remove them from the system. In addition cabbage also contains a number of antioxidants that protect the body from cancer and heart disease.

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