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# Application Of New Types Of Insecticides In The Management Of The Amount Of Apple Fruit And Determine Its Effectiveness

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## 1. INTRODUCTION

The fact that the development of apple orchards is not the same in every season has been studied in several literatures, which depends on the biological characteristics of the pest and the influence of external factors.
The world is trying to use chemicals to control the amount of apple cider (C. pomonella), but the drugs used do not always give the expected effect.

There are simple reasons for this, and the more specific ones depend on the duration of application. According to researchers Zhigarevich and Yakubov, 8-10 days after the period applied to the first generation, the efficiency was higher after the second treatment. Another researcher, Rajabi et al. data also showed that efficacy was high against first-generation worms when applied twice within 10-15 days.

Hepdurgun et noted that in the case of the average population, chemical treatment of pest offspring up to 2-4 times a season can drastically reduce their number. Ioriatti in his research it is advisable to spend the first wintering periods during the gross egg-laying period of the apple orchard. Depending on the air temperature showed the need for a second treatment after 8–10 days.

Apple fruit genotypes have emerged that embody morphological, physiological and biological characteristics that are adaptable to different regions.
They flourish by giving one to four generations in places where the pest is common and developing, depending on the climatic circumstances. Seed products for crops that are not contaminated with this pest are in high demand on the global market. As a result, more chemical treatments are currently being employed to combat this issue. Throughout the season, chemical treatments are applied 10-15 times to keep the pest population below the economically harmful level. The study of the degree of damage of polyunsaturated species among pests is a much more complicated task, because the direct damage caused by insects (worms) does not fully represent the extent of the actual damage. This is because plants or fruit trees have a compensatory property. It is known that plants (including fruit trees) shed most of their flowers and buds naturally. This process takes long enough. On the other hand, in response to various damages, a reaction occurs in the plants, i.e., the damaged fruits ripen prematurely and shed prematurely, and instead the fruits, which should actually shed

themselves, are preserved instead. This has been mentioned in the scientific articles of many researchers. Nevertheless, knowing the potential capabilities of the worms, the density of the trees, and the yield of a particular variety, it is possible to determine the loss of an apple crop. For example, when trees are planted in an 8x5 m system, there are 250 trees per 1 ha of garden area (in our experience - 230 per 1 ha). Different apple varieties can bear an average of 800 to 1,500 fruits per tree at the end of the season. The question arises: at what density of the pest (density of worms, the percentage of damaged fruit) can the protective process justify itself?

During the development of the first generation of OlM, the compensatory properties of trees are of great importance, because at this time there is a massive shedding of "excess" fruit elements. Therefore, it is not possible to determine the degree of damage of apples at this time.

If we take into account the fact that apple caterpillars damage a single apple weighing 70-100 g during its lifetime, then it can be seen that 12-14 caterpillars on one tree cause loss (or quality deterioration) of 1 kg of fruit and 230 kg of fruit per hectare. If we take into account that the price of 1 kg of fruit is 2000 soums, then this loss is 230 kg x 2000 soums = 460,000 soums per hectare. This means that processing costs (4 times per season: 4x70000 = 280000 soums) can be covered 1.64 times. Thus, in orchards of medium-yielding, strong-growing trees, the damage of apple orchards can be significant, with 1 in 80-100 fruits justifying the protective treatment when damaged.

These calculations apply to foggy middle and late apple varieties with agrofon and yield, respectively. In cases where the gardens are abandoned or in low-grained trees, changes to the calculations are required. Our calculations differ from the recommendations adopted in Russia (i.e. processing when 2 out of 100 apples are damaged).

It is very difficult to determine the loss of the crop under the influence of apples only in field conditions, because chemical treatment destroys not only the apple, but also a number of other satellite pests that pose a threat to the crop. ) can talk about complex protection. Therefore, during the 2001 season, we conducted experiments on farms in Qibray district, where two varieties of apples were chemically treated 4 times a season. In one of them, a mixture of insecticide with Bayleton fungicide was used (Table 6.2). In mid-August and September, experimental (protected) and control (unprocessed) trees were harvested (1 tree yield; 1 hectare yield; additional yield and commodity yield). Based on the results obtained, the following conclusions can be made. In the conditions of Tashkent region, protection of orchards from pests is a very important measure, as as a result of protection, different varieties yielded an additional 147.2-202.0 ts / ha per hectare; of which 87.2-83.1% are of high quality (and in control - 21.3-17.2%).

Depending on the preventive and agro-technical measures, the gardens can be adequately protected by insecticides used 4 times a season, one of which is the addition of fungicides.

Data on determining the effectiveness of chemical treatment only against apple orchards are given in Table 6.3. As can be seen from the table, under the untreated trees, the number of fruits damaged by apple orchards is 15-16% higher. Among the ripe fruits on the trees protected from apple orchards, the damage was 7.7-11.1%, and in the control - 57.2-66.2%. Yields in protected trees were 83.1-79.3%, and in control - 23.1-29.2%, with 1-1.4% of damaged fruits and 39.8-22.5% in control. %. Based on the above information, the following conclusions can be drawn:

1. In medium-yielding, strong-growing apple varieties, the damage of OlM is felt when one out of every 100 fruits is damaged. At the same time, the yield loss per hectare is 200-230 kg. Under current conditions, 4-season tillage in gardens can cover 1.64 times.

However, the impact of chemicals on the environment and human health is increasing and the resistance of the pest to these agents is increasing.

Finally, the transition to a Harmonized Control System (IPM) has been recommended by scientists around the world to reduce the use of chemicals in pest control and to control the amount of apple fruit in reducing their environmental impact. One of them is the use of various pheromone catchers, as well as their resistance to natural reproduction. Such sex pheromone traps are successful not just in apple orchards, but also in the biological protection of plants and the cultivation of environmentally friendly fruit products. One of the most significant drawbacks of this strategy is that it is incapable of attracting females. Apples of all species in the apple orchard's biocenosis (microorganisms, parasites, predators) serve as the primary source of biological protection and a coordinated management system.

The implementation on the basis of their phenological calendars in the management of the amount of pests of apple fruits and other crops leads to an increase in the effectiveness of combat measures.

During the summer season, the fruit of apples develops in the regions of the Republic with three generations, in Mountain regions with 2-3 generations (1.- table). The fruit is winter in the period of worms in the range of gray Yuka paws. Most of them settle in shelters: crevices and cracks in the trunk of the tree and in the colon, a small part lives in the soil, under the moved bark, as well as under the root Bud, organic shoots on the surface of the soil.

**Main part**

High yields of strawberries, currants, and raspberries, as well as fruit purity and medicinal characteristics, are among the country's fruit and vegetable harvests. Because of their slow development, these plants are softened and supplemented with organic and mineral fertilizers in the spring. The yield of strawberries is determined by the time it takes for the soil to soften, and the softer the soil, the larger the yield. The soil is loosened to a depth of 10–12 cm, so that the soil around the plant can be cultivated. Depending on the soil fertility, 120-180 kg of pure nitrogen, 90-120 kg of phosphorus and 30-60 kg of potassium are applied per hectare.

Nitrogen and phosphorus fertilizers are applied in mid-spring (March), the rest of the crop is harvested. The plant now begins to produce buds for the next year.

The tubers are cleaned of old, dried leaves, and the dried leaves should be removed and burned. When the roots are exposed, the soil is removed, and the growth points of the sunken or deeper tubers are exposed. The field is cleared of weeds, the soil is loosened, the crop is evenly distributed, and the dry ones are replaced by new ones.

The main condition for growing strawberries in the republic is water supply. Frequent rainfall does not meet the needs of the plant during the growing season. Strawberries are irrigated 13-24 times during the growing season, with a water consumption of 300-800 m3 / ha per hectare.

In the gravelly lands of the Fergana Valley and in Bukhara, Kashkadarya and Surkhandarya regions, irrigation should be carried out more frequently, but , before planting in small amounts, and in heavy soils of Tashkent region, less.

Watering time depends on air temperature and soil moisture. The first watering is when the fruit starts to ripen - in April, but when spring comes early and dry, it is watered once in March, 3–4 times in May, 2–3 times in June, 3 times in July, 2 times in August, once in September and October. During the ripening period, the furrow is irrigated intermittently.

Currant is a perennial shrub that grows well in one place for 15-20 years. In early spring, 120-150 kg of pure nitrogen fertilizer is applied to the blackberry field, plowed to a depth of 25-30 cm between rows, and the bush area is softened. As a perennial shrub, it has the ability to grow new branches every year. The branches begin to bear fruit in the second year, and the yield on the branch increases from 3 to 5 years. After 5 years, the yield decreases and the fruit crumbles.

Therefore, in the spring, branches older than 5 years and weak annual branches are cut off, and in their place 5-6 well-developed annual branches are left. A plentiful and high-quality harvest is obtained if there are 20-25 branches of different ages on one currant.

Currants are watered six to twelve times during the growing season, depending on soil moisture and mechanical composition.
In areas with good moisture retention, the irrigation rate is 500–800 m3 / ha. forms. The first watering is during the flowering period, and at the beginning of fruiting, the branches are watered until they are completely moistened with water. During the period of fruiting and ripening (May-June), the number of waterings is increased and one watering is carried out every 10-15 days. After harvesting (July-August), the budding period begins. During this period, the soil should be moist and soft. In September, the currants are watered once before preparing for winter, then the aisles are softened to retain moisture in the soil. If the soil begins to dry out, the soil cracks, the roots break off, the plant stops growing, and the leaves turn yellow, which should not be allowed.

Due to the proximity of the roots of raspberry bushes to the ground, the aisles are loosened to a depth of 10–12 cm, and around the bush - to a depth of 4–5 cm. The upper part of a semi-shrub plant is biennial, and in the process of development - perennial. The root system here is perennial, but the branches can only live for two years. In the first year, the twig grows, and in the second year it bears fruit. The collected stem dries up by autumn. In autumn or early spring, dried branches are cut, replaced with new shoots, and the upper part of annual branches is cut off (150–160 cm higher). Then the buds will develop well, and the fruits will be large, high-quality and abundant.
Some raspberry types produce twice as much fruit as others. In these types, an annual branch grows on a branch after the second year of ripening (end of May and June) in August, at the top of which buds develop, and the fruits mature in September. Raspberries have been growing in the same spot for more than ten to twelve years and produce fruit each year. Grows well on humus-rich, well-drained and permeable sandy loam and loamy soils, gives abundant yields. Not suitable for planting in heavy soils, marshes, and carbonate-rich soils. Fertilization is one of the important agronomic measures to increase yields.

It is known that raspberries form a large number of buckwheat roots every year and absorb many nutrients from the soil. Therefore, in order to get a rich harvest, it is necessary to apply 500-600 kg of superphosphate, 100 kg of potassium salt and 150-200 kg of ammonium nitrate per hectare of mineral fertilizers annually. Depending on soil fertility, 60-80 tons of organic fertilizers per hectare should be applied annually or at intervals. Manure, phosphorus and potassium fertilizers are applied when plowing in the fall, and nitrogen fertilizers are applied in the spring before loosening the soil.

During the growing season raspberries are watered 12–15 times, the amount of irrigation is 500–600 $m^3$ per hectare. Irrigation is carried out before the harvest, when the first watering ends, the second before flowering, the third before fruiting, the fourth to eighth

when the fruit ripens, the ninth to fifteenth. In order to make the plant resistant, watering is stopped in September.

In addition to the selection of varieties and the use of agricultural techniques to increase the yield of berries and obtain high quality fruit, it is important to take timely measures to protect plants from diseases and pests. Strawberries are more susceptible to illnesses such white spot, flour dew, and gray rot. Fruit and plant damage is caused by insects such as the long-nosed strawberry mite, leafhopper, golden beetle, and mucous worms. Verticillium illness affects currants to some extent, but long-nosed and spider mites are more common in raspberries.

One percent Bordeaux fluid is sprayed in the spring when the plant begins to grow leaves or before flowering, and three percent Bordeaux fluid is treated twice in the fall against the white spot disease of strawberries. Gray rot attacks the plant's fruits, flowers, fruit pods, and foliage. The illness is more common when the fruit is watered often prior to maturity and when the fruit comes into contact with the ground.

Damaged fruits rot and covered with gray dust. On the leaves appear black streaks, spots with large bands. It is necessary to pick up the rotten fruit and bury it. Flour dew disease affects the leaves, flowers, buds, ripe fruits of the plant.

The measure to control the disease is to collect and destroy plant debris. In addition, as soon as the first signs of the disease appear, it is necessary to spray, spraying it with one percent sulfur colloid. This should be repeated every 15–20 days until 20 days before harvest. Verticellosis wither affects the branches of currants, the first symptoms of which are felt in May. One- or two-year-old twigs turn yellow and the leaves wither, and during the disease the currant twig is partially or completely withered. In doing so, it is necessary to cut the dried branches, remove diseased bushes with roots and underground twigs, and remove the fallen leaves.

Spraying 30% Carbophos (2–4.5 kg per hectare) or 1% Bordeaux liquid in early spring against long-nosed pests, strawberry leaves, spiders gives good results. Timely and high-quality implementation of these measures will create a solid foundation for a rich berry harvest.

In the gravelly soils of the Fergana Valley and in the Bukhara, Kashkadarya and Surkhandarya regions, irrigation is frequent, but to a lesser extent. In the heavy soils of Tashkent region, it is less, but it is necessary to spend until the harvest.

Watering time depends on air temperature and soil moisture. The first watering is when the fruit starts to ripen - in April, but when spring comes early and dry, it is watered once in March, 3–4 times in May, 2–3 times in June, 3 times in July, 2 times in August, once in September and October. During the ripening period, the furrow is irrigated intermittently.

Currant is a perennial shrub that grows well in one place for 15-20 years. In early spring, 120-150 kg of pure nitrogen fertilizer is applied to the blackberry field, plowed to a depth of 25-30 cm between rows, and the bush area is softened.

As a perennial shrub, it has the ability to grow new branches every year. The branches begin to bear fruit in the second year, and the yield on the branch increases from 3 to 5 years. After 5 years, the yield decreases and the fruit crumbles. Therefore, in the spring, branches older than 5 years and weak one-year branches are cut, and in their place, 5-6 well-developed annual branches are left, and the rest are cut. Abundant and high-quality harvest is obtained if a single currant has 20-25 branches of different ages. Currants are watered six to twelve times during the growing season, depending on soil moisture and mechanical composition. In areas with good moisture retention, the irrigation rate is 500–800 m3 / ha. forms. The first watering is during the flowering period, and at the beginning of fruiting, the branches are watered until

they are completely moistened with water. During fruiting and ripening (May-June) the number of waterings is increased and one watering is given every 10-15 days. After harvesting (July-August) begins the period of bud formation. During this period, the soil should be moist and soft. In September, currants are watered once before preparing for winter, then the row spacing is loosened in order to retain moisture in the soil. If the earth begins to dry up, the dirt splits, the roots break off, the plant stops developing, and the leaves become yellow, which is not something that should be allowed.

The row spacing is relaxed to a depth of 10–12 cm around the bush, and to a depth of 4–5 cm around the bush, due to the proximity of the roots of raspberry bushes to the ground. The semi-upper shrub's part is biannual, and the development process is periodic. Moreover, the development process is never-ending. The root system is evergreen, while the branches have a two-year lifespan. The rod grows the first year and yields fruit the second year. By October, the harvested stem has dried up. Dry branches are chopped off in the autumn or early spring and replaced with new shoots, and the upper section of the annual branches (150–160 cm above) is cut. Then the flower buds will develop well and the fruits will be large, high quality and abundant.

Some varieties of raspberries have the ability to bear fruit twice. In these varieties, after the second year of ripening on the twig (late May and June), an annual twig grows in August, flower buds develop at the top of the twig, and the fruit ripens in September. Raspberries grow in one place for 10–12 years and more and bear fruit every year. Grows well in humus-rich, well-drained and permeable sandy and loamy soils and gives abundant yields. It is not suitable for planting in heavy soils, swamps, carbonate-rich soils. One of the important agronomic measures to increase productivity is fertilization. It is known that raspberries form a large number of buckwheat roots every year and absorb many nutrients from the soil. Therefore, in order to get a rich harvest, it is necessary to apply 500-600 kg of superphosphate, 100 kg of potassium salt and 150-200 kg of ammonium nitrate per hectare of mineral fertilizers annually. Depending on soil fertility, 60-80 tons of organic fertilizers per hectare should be applied annually or at intervals. Manure, phosphorus and potassium fertilizers are applied when plowing in the fall, and nitrogen fertilizers are applied in the spring before loosening the soil. During the growing season raspberries are watered 12–15 times, the amount of irrigation is 500–600 m3 per hectare. Irrigation is carried out before the harvest, when the first watering ends, the second before flowering, the third before fruiting, the fourth to eighth when the fruit ripens, the ninth to fifteenth. In order to make the plant resistant, watering is stopped in September.

In addition to the selection of varieties and the use of agricultural techniques to increase the yield of berries and obtain high quality fruit, it is important to carry out timely measures to protect plants from diseases and pests.

Strawberries are more susceptible to white spot, flour dew, gray rot diseases Insects such as long-nosed, strawberry mite, leafhopper, golden beetle, mucous worms damage the fruit and plant. Currants are partially affected by verticillium disease, while raspberries are more susceptible to long-nosed and spider mites.

3% Bordeaux fluid is sprayed twice in the fall against the white spot disease of strawberries, and one percent Bordeaux fluid is sprayed in the spring when the plant begins to produce leaves or before flowering. Fruits, flowers, fruit pods, leaves of the plant are damaged by gray rot. The disease mainly develops when the fruit is watered frequently before ripening and when the fruit touches the ground. Damaged fruits rot and are covered with gray dust. On the leaves appear black streaks, spots with large bands. Rotten fruits

should be collected and buried. Flour dew disease infects leaves, flowers, buds and ripe fruits of the plant.

The measure to control the disease is to collect and destroy plant debris.

In addition, the first signs of the disease should be dusted with a decoction, spray on it a percentage of sulfur colloidal. This measure should be repeated every 15-20 days until there are 20 days left to harvest. The disease of the verticellez sagging damages the branches of the scab, the first signs of which are felt in May. A year or two the branches turn yellow and the leaves turn yellow, during the period of the disease the Spruce branch remains partially or completely dry. It is necessary to cut off the dried twigs of the bun, remove the diseased tubers with roots and underground branches, removing the spilled leaves.

From pests it is good to spray 30 percent of Carbophos (2-4, 5 kg per hectare) or 1 percent of Bordeaux liquid in the early spring against Sturgeon, strawberry leaf,spiders. The timely and high-quality implementation of these events creates a good basis for the abundance of fruit berries.

## 2. REFERENCES

[ 1] Rakhmonova, M. K., Khamdamov, K. K., Parpieva, M. K., & Abdullayeva, G. D. THE METHOD OF APPLYING THE TRICHOGRAM AGAINST THE APPLE MOTH. Zbiór artykułów naukowych recenzowanych., 160.

[ 2] Rakhmonova, M. K. (2018). The use of trichogramma (TRICHOGRAMMAEVANESCENS) against apple fruit moth. Actual Problems of modern Science, (4), 215-217.

[ 3] Bustanov, Z. T., Khamdamov, K. K., Rakhmonova, M. K., & Rustamova, G. Yu. (2018). THE EFFECT OF COMBINED CONTROL ON THE QUALITY OF FRUITS, THE EXTRACTIVITY OF ALGAE WORMS. In Features of the modern stage of development of natural and technical sciences (pp. 84-87).

[ 4] Rakhmonova, M. K., Khamdamov, K. K., & Mirabdulaeva, N. (2020). BIOLOGICAL EFFICACY OF THE DRUG "ABAM EXTRA" AGAINST APPLE MOTH. Actual Problems of Modern Science, (5), 148-150.

[ 5] Isashova, U. A., & Rakhmonova, M. K. (2020). THE IMPORTANCE OF PARASITIC ENTOMOPHAGES IN CONTROLLING THE NUMBER OF APHIDS IN VEGETABLE CROPS. Actual Problems of modern Science, (5), 139-141.

[ 6] Rakhmonova, M. K., Khamdamov, K. Kh., & Abdullayeva, G. D. (2019). INTENSIVE APPLE ORCHARDS: BIOMETODES. Bulletin of Science, 1(12), 252-256.

[ 7] Alimukhamedov S. N., Adashkevich B. P., Adylov Z. K., Khodzhaev Sh. T. Biological protection of cotton. - Tashkent: Mehnat, 1989 – - 167 p. /3 from-Denmark to Rus. and Uzbek. yaz./.

[ 8] Anisimov A. I., Lazurkina N. V., Shvedov A. N. Features of induction and inheritance of sterility under the action of different doses of gamma rays on the apple fruit moth /Inf. byul. UPU MOBB, Leningrad. – 1988. - №22. – 6 p.

[ 9] Arakelyan A. O., Nikoghosyan E. Z. Eastern plodozhorki in Armenia /Materials of the Seventh Congress of the All-Russian Federation. entomol. total. (part 2). - L.-1974. - p. 13-14.

[ 10] Arkhangelsk P. N. Pests of gardens of Uzbekistan.- Tashkent, 1941 – - 159 p.

[ 11] Atanov N. T., Gummel E. A socle against the eastern fruitworm / / Zh. Agriculture of Uzbekistan. - 1987. - No. 3. - pp. 42-43.

[ 12] 22. Atlas of the Uzbek SSR /Academy of Sciences of the UzSSR, Department of Geodesy, part 1-2. - Moscow: Tashkent, 1982 – - 122 p.
[ 13] Akhmedov A.M. Improvement of the system of measures to combat the main pests of apple trees in the conditions of the Zaravshan valley //Author's thesis. cand. diss. - Leningrad, 1989 – - 18 p.
[ 14] Babakhanova M. Ecological features of the exclamation owl (A. exclamationis L.) and forecasting of its development and reproduction: Abstract. diss. Candidate of Biological Sciences: 03.00.09. - Tashkent, 1925 – - 21 p.
[ 15] Baeva V. G. The main pests of fruit crops in Central Tajikistan / / Tr. IZIP named after E. N. Pavlovsky, 1960. - Issue 45. - pp. 3-53.
[ 16] Atamirzayeva T., Ochilov R., Rashidov M., A. Sagdullaev., Zahidov M., Saidova Z. A trichogram is a purebred character. - Tashkent: Disaster, 2005. - 18 b.