EPRA International Journal of Agriculture and Rural Economic Research (ARER)- Peer-Reviewed Journal
Volume: 9 | Issue: 9| September 2021 | Journal DOI: 10.36713/epra0813| Impact Factor SJIF (2021) : 7.604| ISSN: 2321 - 7847

UDC 632.8

BIOLOGICAL EFFECTIVENESS OF CHEMICAL CONTROL OF WALNUT DISEASES IN THE CONDITIONS OF TASHKENT REGION

Zokir Usanov
Researcher, Tashkent State Agrarian University, Uzbekistan

ABSTRACT
This scientific article provides information on the results of our research on the most dangerous diseases of walnut trees planted mainly in the Tashkent region and the biological effectiveness of chemical control measures against them.
KEYWORDS: ***walnuts, bacterial diseases, fungal diseases, monitoring diseases. biological effectiveness, chemical control***

INTRODUCTION

Walnut fruit trees according to world scientific classification Plant world, Type of indoor seeded or flowering plants (Angiospermae), class of (true) dicotyledonous plants (Dicotyledonae), order of pines (Fagales), nuts of Juglandaceae family (Juglans) and 19 other species close to them belong to the genus Gikori, or Carya. In total, this family includes 11-12 genera and 89 species[2].

Juglans species grow naturally in Asia, Europe, and especially in North and South America. This category is divided into 4 groups and includes 22 species and 5 subspecies. All species of the category are deciduous trees in autumn, reaching a height of 10-40 meters. The leaves are sessile, 20-90 cm long, each leaf consists of 5-25 petals[5].

Among the species belonging to the family Juglandaceae in the world, the fruit is the most commonly consumed by humans and is of great economic importance.

Some researchers are mistaken in mistaking the fact that the homeland of the common nut is Iran and that it has spread from Iran to other countries in the world. In fact, the origin of the common walnut is Central Asia, especially the foothills in the western part of the Tien Shan Mountains, from Kashmir to Tajikistan, Kyrgyzstan and Uzbekistan. Common walnut has been proven to exist in Central Asia as early as the Oligocene epoch (23.0-33.9 million years ago) and is the center of historical origin, and the J. regia species has spread from Central Asia to other parts of the world. Only this species occurs naturally and culturally in Uzbekistan, other introduced walnut species are mainly used for selection purposes[4].

The biological effectiveness of fungicides against the disease was calculated by the following empirical formula:

$$B = \frac{(I_к - I_o) \cdot 100}{I_к},$$

where B - biological efficiency,%; I_k - k control disease index; Io is the experimental disease index.

To determine the damage of marssoninosis disease to the yield of nuts. The fruits of protected and unprotected trees with effective fungicides in the above experiments were collected and weighed separately. By analyzing the results obtained, it was found that the disease was calculated by calculating the damage to the nut crop.

The development of the disease was determined according to the following formula:

$$P = \frac{U\,(a \cdot b) \cdot 100}{N \cdot K}$$

Here: P -% of disease progression; U (a • b) is the sum of the product of the affected organs in terms of points; N is the total number of observed plant members; K is the highest score on the scale.

To bring the prevalence and development of the disease into a single indicator, we determined the

Volume: 9 | Issue: 9| September 2021 | Journal DOI: 10.36713/epra0813| Impact Factor SJIF (2021) : 7.604| ISSN: 2321 - 7847

disease index according to the following empirical formula:

$$K_i = T \bullet K/100,$$

where K_i is the disease index; T - disease prevalence,%; P - disease development,%.

Determining the biological effectiveness of the chemical control method against walnut diseases Initial observations revealed that walnut tree diseases, especially its dominant marssoninosis disease, were prevalent and strongly prevalent and developing in mountainous areas. With this in mind, we conducted field experiments to determine the effectiveness of fungicides against walnut diseases in walnut orchards planted in 2017 and 2021 in the Tashkent region.

Table 1

Options for experiments to determine the effectiveness of fungicides against marssoninosis of walnuts

Experimental options are fungicides used and manufacturing firms	Consumption norm, l, kg / ha
1. Score 25% (diphenoconazole 250 g / l), Singenta Crop Protection AG, Switzerland	0,2
2. Difen Super 55% (diphenoconazole 200 g + thiamethoxam 350 g / kg), LLC "Euro Team", Uzbekistan-Germany	0,15
3. Sillit 40% (dodin 40 g / kg), Euro Tim LLC, Uzbekistan-Germany	1,0
4. Fitolavin s.e.k., 120000 FB / ml (streptotricin antibiotic complex, 32 g / l), Biofitofarm LLC, s.e.k., Uzbekistan	1,5
5. Sporagin s.e.k., 1500 FB / l (Bacillus subtilis), FE "AnGuzal Agroservis", Uzbekistan	0,75
6. Kurzat n.kuk. (copper oxychloride 450 g + tsimoxanil 42 g / kg), Dupont International Operations Sarl, Switzerland	3,0
7. Falcon 46% em.k. (tebuconazole 167 g + spiroxamine 250 g + triadimenol 43 g / l), Bayer CropSayens, Germany	0,3
8. Coritus 50% s.e.g. (tsiprodinil 500 g / kg), Agrobest Group, Turkey	0,3
9. Crezoxin 50% (cresoxime 500 g / kg), «Expression Agro Chemical Protection», Uzbekistan	0,2
10. Mayseb M-45 80% mankozeb 800 g / kg), Agrobest Group, Turkey	2,0
11. Control (unprocessed)	–

In the experiments, 5 in 2019 and 6 in 2019, a total of 8 chemical and 2 biological fungicides were used in 2018-2021. The total number of variants was 19 Fungicides 3 times during the season - 1) during the period when the leaves are fully written; 2) at the end of flowering; 3) applied 14-30 days after the second treatment. The working solution consumption was 1000 liters. The treatments were carried out using a motorized hand sprayer that hung backwards. Information on the fungicides used and experimental options is provided below.

The experiments were performed on 3 reps, each repetition consisting of one tree. The disease was treated 4 times during the season: 1) before fungicide spraying; 2-4) 15, 50 and 80 days after fungicide spraying. In this case, all the leaves, leaf bands (branches) and fruits of the four branches on which the labels are hung on the four sides of each tree were recorded for the presence of diseases, and their levels of development when present. Damage, disease prevalence, development, and index in walnut leaves and other organs were taken into account on the above scales and calculated by formulas.

REFERENCES

1. *Belisario A., Maccaroni M., Corazza L., Balmas V., Valier A. 2002. Occurrence and etiology of brown apical necrosis on Persian (English) walnut fruit. Plant Disease, 2002, vol. 86, No. 6, pp. 599-602*
2. *Пидопличко Н.М. 1977-а. Грибы-паразиты культурных растений. Определитель. Том 1. Грибы совершенные(Russian). Киев: «Наукова Думка», 1977, 295 p.*
3. *Sheraliev A, Sattarova P «Agricultural plant pathology» Tashkent, 2008 - 40 p.*
4. *Means of plant protection permitted for use in the Republic of Uzbekistan, Tashkent, 2016 - 100 p.*

Volume: 9 | Issue: 9| September 2021 | Journal DOI: 10.36713/epra0813| Impact Factor SJIF (2021) : 7.604| ISSN: 2321 - 7847

5. *Chen S.F., Morgan D.P., Hasey J. K., Anderson K., Michailides T. J. 2014. Phylogeny, morphology, distribution, and pathogenicity of Botryosphaeriaceae and Diaporthaceae from English walnut in California. Plant Disease, 2014, vol. 98, No.5, pp. 636-652.*
6. *Frutos D. 2010. Bacterial diseases of walnut and hazelnut and genetic resources. Journal of Plant Pathology, 2010, vol. 92, (1. Supplement), S1.79-S1.85. Edzioni ETS Pisa, 2010.*