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AN OVERVIEW OF INSECT PROBLEMS IN APPLE (MALUS DOMESTCA) GARDENS

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ABSTRACT----------
Apples are cultivated for their nutritional and medicinal qualities. They are a popular fruit with a rich phytochemical profile. In addition to being extensively consumed globally, they serve important ecological purposes include enhancing carbon sequestration, protecting biodiversity, and halting desertification. In many cultures, apple plants also have religious and mythological importance. On the other hand, little is known about farmers' attitudes, expertise, and approaches to insect pest management. In terrestrial apple-growing environments, insect pests like aphids, weevils, and scale insects have been shown to dramatically reduce apple output. These pests can damage and attack apples in a variety of ways and belong to different groups.
KEYWORDS: *apples, popular fruit, insect, pests, malus domestica, gardens*----------

INTRODUCTION

Apples (Malus domestica Borkh.) are a popular fruit that are grown for their nutritional and therapeutic value. The rich phytochemical profile of apples and apple products, which indicates their potential to improve human populations' health, accounts for their widespread and increasing consumption. It is well acknowledged to be nutrient-dense. It is exemplified by the widely held adage, "An apple a day, keeps the doctor away." Apples are frequently Fresh apples are available year-round around the world and are consumed as unprocessed fresh fruit. Additionally, apple plants offer essential ecological functions, including preventing desertification, preserving biodiversity, improving carbon sequestration, and contribute significantly to the preservation of social and cultural values. In many cultures, including Norse, Greek, and European Christian traditions, apples have religious and mythological significance. As a result, it frequently appears as a mystical or forbidden fruit in various religious traditions. However, as late as the 17th century, the word "apple" was used in the Bible to refer to any (foreign) fruit, excluding berries and nuts. It has been observed that farmers suppress insect herbivores using a variety of management techniques. On the other hand, little is known about farmers' attitudes, knowledge, and methods for controlling important insect pests. Okonya and colleagues discovered that the majority of Ugandan farmers (93%) thought insect pests were a substantial issue. Although these pests might be managed along the edges of the garden, nothing is known about the significance of field margins for assisting insect pests' natural enemies in tropical agriculture.

Furthermore, it was noted that stakeholders lack understanding about arthropod pests, particularly fruit fly pests, regarding their economic significance, pest status, economic impact, and treatment methods, despite some research having been conducted. This has impeded the advancement of efficient methods for smallholder farmers to handle pests. Strangely enough, insect pests still cause a lot of damage. on agricultural output, despite heavy reliance on agrochemicals. Accordingly, the spread of insect pests from one Their distribution and abundance in space and time are based on place to place, which explains the magnitude of the harm they do.

Insect pests have reportedly continued to spread over the world. For instance, the brown marmorated stink bug, Halyomorpha halys, was once thought to be native to eastern Asia but became a dangerous invasive insect pest in North America and Europe. Most significantly, this pest is extremely polyphagous, meaning that it can live in more than several host plants, which accelerates its global spread. Also, studies by indicated that, Cacopsylla One of the most dangerous diseases in the world is caused by Candidatus Phytoplasma Mali, which is spread via melanoneura. Distributions of apple orchards in Europe.

In general, insect pests have been found to significantly lower apple productivity in terrestrial settings where apples are grown. Aphids, weevils, and scale insects, for instance, are the most well-known temperate fruit bug pests in commercial and small-scale apple farms in Ethiopia's Southern Highlands. It is true that bugs are known to change the development of fruits and shoots, and may accelerate the spread of other viruses. Most of these annoyances are temporary, and have occasionally been regarded as severe or persistent pests. Several insect pest species have been observed to become more adapted in various agroecological zones, which has led to losses in big crop production.

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These pests come from a variety of groups, such as the Lepidoptera (moths), Trombidiformes (mites), Coleoptera (Hemipteras, Hymenoptera, and Thysanoptera (thrips), and others. These pests harm and attack apples in different ways. Numerous

Insect pests, like the native South African banded fruit weevil (BFW), were thought to have a restricted dissemination over the globe. However, it was said to exist in Australia, New Zealand, South Africa, and the Western Cape. By consuming the leaves, fruits, fruit stalks, and fruit shoots, it damages the area.

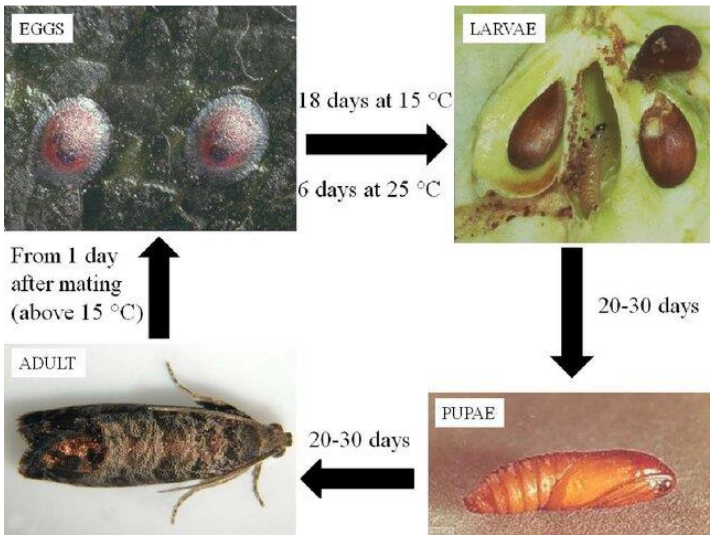


Figure 1. Life cycle of Cydia pomonella (Frank Chidawanyika)

Insect pests have been identified as a significant concern to Africa's horticultural sector due to their high frequency of damage and financial losses to the fruit-growing sector. However, apple producers have traditionally practiced good apple management to prevent losses and damage from insect pests. Furthermore, it was shown that the primary apple types planted in every region act as the foundation for controlling a certain pest. For many years, herbivorous mites and insects, plants Weeds and illnesses were the main obstacles to food crop production. Growers and farmers used chemicals.

The use of living things as pesticides is known as biological pest control. noted that it is a significant substitute for chemical pesticides and, as such, a possible way to cut back on pesticide use.

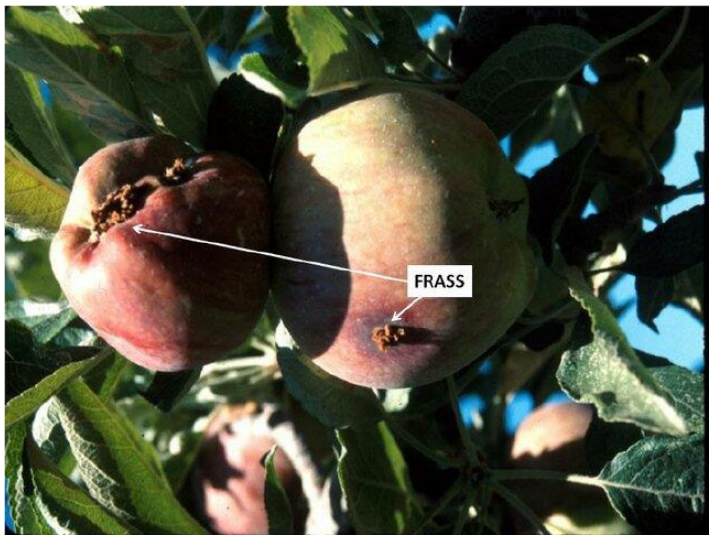


Figure 2. Typical Cydia pomonella damage on apples showing frass at the entry hole (Frank Chidawanyika)

Natural enemies of crop pests fall into three types and are said to be crucial in controlling pest numbers. These consist of diseases, parasitoids, and predators. There are numerous instances of biological control being used successfully, such as the imported parasite complex that manages alfalfa weevil. Furthermore, using biological

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pest control enables both qualitative and quantitative assessments of the effects on populations of the bug's natural enemies. For instance, it was shown that when treatment regimens in organic orchards changed, so did the bird communities in integrated pest management orchards.

Insect pest control in organic farming, according to national and international organic production standards, entails implementing environmentally appropriate and scientifically supported methods. These could therefore be useful in one way or another for managing insect pests. For instance, it was discovered that fruit was impacted by birds. Output in a favorable way by controlling the codling moth (Cydia pomonella), an economically significant insect problem. Thus, claimed that implementing cultural techniques such varied crop rotations improves soil quality by combining. Using some resistant cultivars, adding soil additives, and growing particular cover crops could all help reduce pests. outbreaks. stating that several classes of microbial pesticides are authorized for use in organic farming systems.

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