

annua as the dominant species and both jiejiemai and wild oats is mainly distributed in Hebi, Zhoukou and Pingdingshan; (3) gramineous weeds such as KanMaiNiang were the dominant species. The mixed weed community with both *Zoysia* and pig plague was mainly distributed in the south of Zhumadian and Xinyang (4) in the weed community with gramineous weeds as the dominant species, the gramineous weeds are mainly hard grass and KanMaiNiang, which are distributed in the rice wheat rotation area along the Yellow River and the rice wheat rotation area in southern Henan Province.

Gramineous weeds and broad-leaved weeds are the main types of weeds in wheat fields in Henan Province, dominant weeds such as *Triticum aestivum*, wild oats, and sage weeds will become the main harmful weeds in wheat fields in Henan Province. Time will continue to seriously affect wheat production (Xie Wenfang, Wang Dan, 2015; Qiao Li et. al., 2012). In addition, with the large-scale use of herbicides, Jiejie wheat, wild oats and pig stalks have also developed strong resistance to herbicides. As a result, herbicides cannot effectively control these weeds, and further aggravate the risk of these weeds. At present, there is still a lack of medicines that are safe for wheat and can specifically control the weeds. Prevention effect, it is an urgent problem to develop safe medicines that have ideal control effect on dominant weeds in wheat fields. It is particularly important to formulate reasonable weed control techniques according to the actual occurrence of weeds in different locations to improve the weed control effect and reduce the amount of herbicides (Wang Yanbing et. al., 2015).

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**MAIN FACTORS OF OUTBREAK DAMAGE
OF ORIENTAL FRUIT MOTH**

Oriental fruit moth, *Grapholita molesta* (Busck, 1916) (Lepidoptera: Tortricidae), is an important pest of tree fruits and widely distributed in many fruit-growing regions of the world. The larvae feed on the shoots and

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fruits of the stone and pome plants, which restricts the production of high-quality fruits, and has caused great economic loss in recent years. Specifically, this pest is difficult to predict and control due to the following reasons, (1) the damage caused by the larvae is concealed and always in the fruits and shoots; (2) with the host-switching habits, oriental fruit moth's host transforms from peach to pears and other fruit trees; (3) it has annual reproductive generations and overlapping generation. What makes things worsen is that the change of climate and the diverse planting structure of orchard, makes the outbreak of this pest happens more often. In China, the damage of oriental fruit moth is more serious because of the significantly changing of temperature, increasing of rainfalls, abundance areas of fruit-planting and species richness of the fruit trees. The main factors of outbreak damages of oriental fruit moth and more effective method to control this pest have attracted high attention.

The structure and dynamic variation of insect population is an important theoretical basis for the development of pest prediction and control technology. The changes of population number is an important content of insect ecology research and an important factor for pest management, especially. However, the population number and outbreak damages of this pest are directly influenced by many factors, including environment and hosts.

Environmental factors such as temperature, humidity and light are considered as important factors that affect not only the population number of the pest, but also the different aspects of the pest biology indirectly, such as adult life span and oviposition, growth, fecundity. Temperature, one of the most important factors, always affects the development, survival, reproduction and diapause of the oriental fruit moth. When the average daily temperature reaches 7-8°C for 10 consecutive days, the adult begins to emerge, and will reach a peak when the average temperature reached 11–12°C for 5 consecutive days. According to the literatures, seasonal temperature rising could reduce the overwintering time and promote the adult emergence of the oriental fruit moth, which would accelerate the development of this pest and result in greater damage. The optimum relative humidity for the development of oriental fruit moth is 70–100%. The population numbers and damage rate often be greater because of the increasing of rainfalls or the orchards irrigations. Especially during the developmental duration of adult and oviposition stages, relative humidity can directly affect the fecundity, hatchability of adults and the bore rate of larvae, that generally determines the population size and harm extent of the

next generation. We found that the outbreak damage of oriental fruit moth is increased in these wet weather days, especially after raining through investigations in peach orchards nearby recently.

Host plant as the food source of the insect, have an important influence on the dynamics and populations of the pest. For oriental fruit moth, a host-switching pest that always switching from stone-fruit orchards to pome-fruit orchard during the growing season, it has many hosts such as peach, pear, apple, plum, apricot, cherry, hawthorn, jujube etc. Host plant can affect not only the ovipositional behavior of adults, but also the developmental rate and reproductive output of the larvae. Oviposition preference of females' adults is different depending the difference of the host plants. Adults of oriental fruit moth usually lay eggs on the smooth upper surface of apple leaves, but rarely on the peach fruits. Field investigations have found that in single planting peach or pear orchard, the occurrence regularity is simple, and the population number is small; but in peach, pear, apple and other mixed or adjacent planting orchards, the occurrence regularity is complex, and the population number is big.

The outbreaks damage of the oriental fruit moth was affected by many factors, and occurrence regularity is complicated due to the influence of these factors. Meanwhile the factors will lead to changes in population dynamics of this pests by influencing its growth and development, life span, reproduction and diapause. Furthermore, it brings great difficulty for predicting, preventing and controlling this pest. So, better understanding the occurrence regularity and the factors of outbreaks is of great significance for find more effective methods to control this pest.

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**МАЛА ТОПОЛЕВА СКЛІВКА – ШКІДНИК РОСЛИН РОДУ
*POPULUS***

Серед стовбурових шкідників роду *Populus* важливе місце посідає мала тополева склівка – *Paranthrene tabaniformis* (Rottemburg, 1775) (Lepidoptera: Sesiidae). Під час обстеження насаджень заселення цим шкідником виявлено як на молодих рослинах 7-річної маточної

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