

YELLOWJACKETS (HYMENOPTERA: VESPIDAE) IN THE EUROPEAN PART OF RUSSIA: PEST SPECIES AND CONTROL METHODS

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Abstract Cases of undesirable contacts of people with yellowjackets on the territory of European part of Russia have become much more frequent recently. The yellowjacket pest problem rises usually in natural habitats of these insects changed as a result of a human economic activity (countryside plots, campsites, resorts). Mass development of countryside plots by populations in the European part of Russia, and forest felling have led to the increase of people being stung by yellowjackets. These facts explain why yellowjackets and hornets have been included in the list of the arthropod pests for which control methods in this country should be developed. However, one should remember that they are very useful social insects as yellowjackets are natural biological control agents over the insect pests of agricultural crops.

The family Vespidae in the European part of Russia is represented by 2 subfamilies: Polistinae and Vespinae. The most common species of subfamily Vespinae (including genera *Vespa*, *Vespula*, and *Dolichovespula*) are *Vespa crabro* (European hornet), *Vespula germanica* (German yellowjacket), *Vespula rufa* (red yellowjacket), *Vespula vulgaris* (common yellowjacket), *Dolichovespula media*, and *Dolichovespula sylvestris*. Some species of yellowjackets tend to nest in yards and yard buildings and forage for food waste.

Methods of screening and using various baits for controlling yellowjackets are described in detail in the world literature. Taking into account the biology of yellowjackets, the cycle of their colony development, and peculiarities of their forage behaviour, two directions in baiting control programs have been formed in the world, viz: baiting on the basis of synthetic carbohydrates and baiting on the basis of various kinds of meat with addition of non-repellent insecticide with delayed mode of action. However, the baiting methods for reducing the population of yellowjackets can have a limited use for the climatic conditions of the European part of Russia. The using of insecticides in form of special aerosols and aqueous solutions for treatment of places of high density of worker yellowjackets (e.g. garbage cans) and their nests can turn out to be more successful control measure.