

Impact of agricultural practices on the aphid population dynamics and their predators on alfalfa

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This study was conducted in the alfalfa pasture on the loess plateau in northwest China. The goal was to determine the impact of mowing and spraying imidacloprid on alfalfa crops on the population dynamics of aphids and their predators. The results showed that mowing had been very effective in controlling spotted alfalfa aphid (*Therioaphis trifolii* (Monell)) and pea aphid (*Acyrtosiphon pisum* (Harris)). Mowing in early June significantly reduced the average number of the two aphid species in different seasons and kept them at low density. Meanwhile the population of their predators was also reduced but to a lesser degree. Consequently the ratio between the number of predators and aphids increased tremendously. A lower predator-aphid ratio occurred after spraying with imidacloprid, which led to an increase in seasonal average number of the two aphid species and decrease in number of predators including coccinellids, green lacewings and syrphid flies. The majority of these predators were killed by the insecticide, resulting in rapid recovery of the pests, causing very severe damage to the crops. Based on this study, it is recommended that the alfalfa crop should be harvested as early as possible if aphid is the only targeted pests, especially when the insect peak time is near the harvest season. In the seed field, all the necessary chemical pest control should be conducted by utilizing highly selective insecticides. Chemicals that are very toxic to predators of the pest should be avoided as much as possible in order to sustainably control the insects.

Biography

Liu Changzhong has completed his Ph.D from Lanzhou University. He is a Professor and the vice rector of College of Grassland Science. He has published more than 45 papers in reputed journals.

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