Crop and urban systems

Can repellent plants reduce the abundance of the common vole (*Microtus arvalis*)?

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Common vole (*Microtus arvalis*) is one of the most damaging rodents in agriculture. A number of methods are used to suppress its numbers and limit damage. One option is growing crops that are not suitable for voles; this might limit their numbers and distribution. Through long-term monitoring of common voles throughout the Czech Republic, their abundance in eleven crop types (annual, biennial and perennial crops) was evaluated through active burrow counts. Reference crops were selected from perennials and biennials and annual crops were selected as potential repellents. The perennial crops were clover with alfalfa, which serve as the primary habitat for voles. These crops are where voles are found in their highest densities, and from which they spread to the surrounding crops during periods of high abundance. The biennial winter rape was selected because it provides favourable conditions for voles to overwinter and multiply rapidly in the spring. Compared to perennial crops and winter rape, significantly lower numbers of voles were found in onions, poppy seeds, and maize. Additionally, fewer voles were also found in mustard compared to perennial crops. Onion and poppy were the only crops to show a significantly lower abundance of voles in comparison to wheat. The annual crops tested are unattractive to voles and due to the cultivation practices used, they do not even have enough weeds as food. As profitable crops they can be cultivated over sufficiently large areas to potentially prevent the spread of voles to surrounding crops, especially during outbreak years.

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