

## 11 Integrated pest management and the role of spiders within Nebraska agroecosystems

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**Abstract:** As generalist predators capable of filling a wide variety of ecological niches, spiders play a unique role within the ecosystems they inhabit. A diverse spider community has the potential to intercept and prey upon an array of insect species which could be particularly advantageous within cropping systems. This study sought to reveal the composition and abundance of spider communities within Nebraska agroecosystems under conventional and conservation management and elucidate the trophic relationships between the spider community and key pests of corn. Spiders were collected from four conventional, high-input corn fields and four conservation, low-input corn fields in western Nebraska from May through August 2017. A total of 569 spiders were collected with 242 spiders representing 14 families from the conservation fields and 327 spiders comprising 8 families from the conventional fields. During a preliminary feeding trial, a variety of spider families were starved for five or seven days and then offered one neonate western bean cutworm larva to evaluate predatory response. The majority of tested spiders readily preyed upon the larva. In the second half of this project, the gut contents of the collected spiders will be analyzed to determine whether predation of key pests of corn is occurring as well as to map out the trophic interactions of spiders with one other and with other arthropods. These results can be utilized to develop improved conservation biocontrol programs in the future.