

# Symposium

Papers from the symposium on  
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## Sunflower Performance — Agronomic Aspects

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### ABSTRACT (paper not available)

Sunflower performance is influenced by the cultivar, the environment, and the interaction of cultivar and environment. The environment is only partially controlled by the farmer and involves the interaction of many factors which vary greatly from day to day and from season to season. Good agronomic practices, which at least in part modify the environment, lead to the establishment of optimum use of the growing season. Plant population used in the major production areas range from 35,000 per hectare to 60,000 per

hectare with planting depth ranging from 3 cm to 10 cm depending on soil moisture. Nitrogen is the most common limiting soil nutrient and generally as yields increase in response to nitrogen fertilizer there is a corresponding decrease in oil contents. Adequate weed control is very important during the first three weeks after emergence and is accomplished mechanically and/or chemically. Sunflower is frost-tolerant during both the seedling stage and the post-flowering period, and most susceptible during the period of rapid growth and flowering. Sunflower is not a highly drought-resistant crop, but is effective in utilizing soil moisture to depth of over 2 m.

## Insect Problems of Sunflowers

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### ABSTRACT (paper not available)

Many insect pests belonging to several different groups attack cultivated sunflowers in North America. Sunflowers are native to this continent and weeds belonging to the same or closely related species are abundant throughout areas where cultivated sunflowers are grown. Thus, most sunflower insects are native and have been multiplying rapidly during the recent expansion in sunflower production. Discussion of the insect pests of sunflowers is facilitated by grouping them according to the part of the sunflower plant attacked, e.g., (a) leaf feeders, (b) stem and root feeders, and (c) head feeders. Leaf feeders are usually the easiest group to control. They are exposed to view, they and their damage are easily evaluated, and effective insecticidal controls can be applied when necessary. The stem and root feeders such as the carrot beetle in the South and

cutworms in the North can cause severe damage before control measures are applied. However, many other species of stem feeders can be present in large numbers without causing economic damage. Head feeders include the sunflower moth, the banded sunflower moths, the sunflower seed maggot, the seed midge, and the seed weevil. These pests are potentially very damaging and, once they have entered the head, are difficult to control with insecticides. Traps baited with a synthetic pheromone are now available to monitor the abundance of sunflower moths. Further research on early warning systems to detect the abundance and distribution of other pests in this group is especially important. These will enable growers to apply controls before the pests are protected within the heads and will reduce the application of insecticides when they are not required.