IMPACT OF POLLINATORS ON CORIANDER SEED PRODUCTION

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Abstract

To determine the effect of pollinators on coriander seed production, ten heads were bagged prior to blossom with 1 mm nylon netting in each of two fields near Madras, Oregon. At harvest, plants with bagged umbels were removed from the field, and seed set and percent germination were determined for bagged umbels and paired, non-bagged umbels. There was strong statistical difference (P _ 0.01) in seed set, but no difference in percent germination.

Introduction

Coriander *(Coriandrum sativum* L.) has been grown for seed production in central Oregon since 1984. The foliage is used as a fresh herb (cilantro) and the seed as a spice (coriander). Coriander, a member of the Umbelliferae family, is partially self-fertile and produces umbels with mostly bisexual flowers early in the season followed by male flowers. Pollen release precedes stigma receptivity so pollen from a different flower is required for seed set. Research in Russia during the 1950's indicated that exclusion of pollinators results in a reduction from a 68 percent seed set to 49 percent.

Coriander blossoms are highly attractive to both pollen and nectar-collecting insects, including honey bees. Coriander strongly attracts native pollinators, as well as honey bees, which are brought into central Oregon to service a variety of seed crops including carrot, onion, radish, and dill. As a result, some coriander growers place two hives per acre around the crop to pacify neighboring growers whose bees are attracted away from other seed crops. Coriander yields in central Oregon have been near 2,000 pounds per acre until recent years when yields have dropped to near 1,500 pounds, according to a seed industry representative.

Materials and Methods

This study was conducted during the 1992 season to evaluate the effect of pollinators on seed yield of coriander. To exclude pollinators, ten heads were bagged prior to blossom with 1 mm nylon netting in each of two fields near Madras, Oregon. At harvest, plants with bagged umbels were removed from the field and seed set was determined for the bagged umbels and paired, non-bagged umbels on neighboring stems. Germination tests were conducted to determine percent germination.

Results and Discussion

There was strong statistical difference (P _ 0.01) in seed set between bagged and non-bagged umbels. Seed set was reduced by an average of 76 percent for bagged umbels compared to non-bagged umbels. The percent germination for bagged and non-bagged umbels was non-significant, although the trend was for a slightly lower germination for bagged umbels. This research supports the importance of pollinators for seed set on coriander, but their effect on percent germination appears inconclusive.

Table 1. Comparison of seed set and percent germination for pollinated and non-pollinated heads of coriander, from two locations near, Madras, 1992.

Treatment	Seed Set/Umbel	Germination
Bagged heads	3.4	48
Non-bagged	13.2	55

Differences in seed set are significant at P 0.01.
Differences in percent germination are non-significant.