

NAAIC Abstract Submission

AFRP Lightning Session

Managing selfing rates in alfalfa seed production fields

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Although alfalfa (*Medicago sativa* L.) is known to outcross, self-pollination can occur and selfing rates up to 50% have been reported. Selfing leads to severe inbreeding depression where the number, germination, and survival of selfed seeds are reduced relative to outcrossed seeds. The reduced seed production affects seed yield while the reduced seed germination and survival can influence forage yield. Lower yields decrease seed and hay producer profits. Planting, irrigation, pest and weed control management practices can affect selfing rates via their impact on flower and plant density. Moreover, pollinator management strategies can also impact selfing rates. We have collected seeds and leaves from a total of 30 alfalfa seed-production fields, with 10 fields in each of three U.S. regions: the Pacific Northwest; the California Central Valley; and the California Imperial Valley. Management strategies used in each field have been recorded. Seeds and leaves are being genotyped at 15 microsatellite loci and genotypic data of seed-parents and progeny arrays are used to estimate field selfing rates. We report the selfing rates of the fields where genotyping of seed-parents and progeny arrays has been completed. We discuss the management strategies typically practiced in these fields. The aim of this research is to describe the variation in selfing rate in alfalfa seed-production fields and to identify best management practices that reduce selfing in order to improve alfalfa forage and seed yields.

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