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Reproductive status of established black dot flea beetle (*Aphthona nigriscutis*) populations in South and North Dakota

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Black dot flea beetles, *Aphthona nigriscutis* Foudras, are used for biological suppression of leafy spurge, *Euphorbia esula* L. Thousands of adults are collected annually from insectaries in several states for redistribution to other spurge infested areas. However, little is known about the reproduction biology of black dot flea beetles. The purpose of this research was to monitor the reproductive status of black dot flea beetles under field conditions. In 1995, adults were collected weekly from an insectary near Pollock, SD by sweep net sampling from June 26 through August, when flea beetle adults were no longer present in the samples. One hundred adults were examined and gender ratios determined. The spermatheca of 25 females were removed from the abdomen and analyzed for the presence of sperm. Oocyte maturation in these females also was determined by rating oocyte development. Males were rare in sweep net samples and did not exceed 4% of the adult population throughout the summer. The insemination rate of females on July 6 was 44% and was significantly ($P < 0.01$) higher than previous or subsequent sampling periods. Following July 18, only about 20% of adult females from samples were inseminated. Oocyte maturation gradually increased to a peak on July 25. Adults were rare at the Pollock site on August 3 and were not present on August 22.

In 1996, the study was expanded to include two North Dakota populations (Theodore Roosevelt National Park, Valley City). Adults began to emerge at the three sites between June 14 to 26. The percentage of males in the Pollock, Valley City and Theodore Roosevelt National Park samples (from the first week) was 6.9%, 14% and 20%, respectively. Analysis of weekly samples is continuing and additional results will be reported. These data are useful in determining the optimum period for collection of reproductively viable individuals. These data could also be used as an index for numbers of individuals needed to be released in redistribution sites.