Effect of Nitrogen Fertilization on Host Plant Quality and on the Developmental Parameters of Asian Citrus Psyllid and its Nymphal Parasitoid *Tamarixia Radiata*

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The Asian citrus psyllid (ACP), *Diaphorina citri* Kumayama(Hemiptera: Liviidae), is an invasive species in the U.S. that has been recognized as a serious threat to the citrus industry. Feeding of ACPs can cause twisting of citrus flush, shoot distortion, and affects the growth of young plants. However, ACP is economically important because of its ability to transmit *Candidatus* Liberibacter asiaticus *(CLas)*, the putative causal agent of citrus greening disease, one of the deadliest diseases known to citrus. Vector control is one of the recommended strategies to reduce the spread and incidence of Huanglongbing (HLB). The parasitoid *Tamarixia radiata* is used as an effective biological control agent to reduce population of psyllid nymphs. Reproduction and parasitism potential of *T. radiata* are dependent upon its psyllid nymphal host quality, which in turn is affected by host plant quality. We tested the host mediated effect of nitrogen fertilization on *T. radiata* life history parameters. Young potted orange jasmine (*Murraya paniculata*) plants were treated with 0, 7.6, 10.6, and 13.6g of nitrogen as $(NH_4)_2SO_4$ and infested with 10 pairs of mated *D. citri* adults, one week after nitrogen application in insect resistant cages. After 7 days of oviposition, adult psyllids were removed and nymphs were allowed to develop until the third or fourth instar. Half of the cages were used to evaluate the effect of nitrogen fertilization on *D. citri* reproduction by recording the number of adults produced. The other half of the cages each received five pairs of mated *T. radiata* adults. Nitrogen fertilization induced profuse flush shoot production of potted orange jasmine plants. However, the number of adult ACP emerging per cage did not vary with nitrogen treatment. In contrast, nitrogen fertilization significantly increased nymphal parasitism by *T. radiata* at the low and medium rates. Based on this study, we conclude that nitrogen application can be used to produce better plants resulting in a higher production of *T. radiata*.