Flea Beetle Feeding and Early Blight

I was greatly surprised in the last week when I visited a few farms and saw that 2-4 week old tomato plants had some early blight (*Alternaria solani*) and in some cases bad early blight lesions (Fig. 1). This is very early in the season to be seeing this level of early blight. The thing that was really odd is just about every one of the tomato plants with early blight also had moderate to high flea beetle feeding (Fig. 2). In some cases I could not find any flea beetles after the heavy rains we have just had and in other cases I could find a number of them. Normally this amount of flea beetle feeding would not have been of much concern, but flea beetles can cause increased infections of alternaria in tomatoes and potatoes and possibly other early blight susceptible crops. I found that there was a strong correlation (r=0.94) between flea beetle feeding and the amount of early blight on tomato plants on several different farms. By the amount of flea beetle feeding I have seen on eggplants and tomatoes so far this year this appears to be a good season for them and with the rains we have just had their feeding has increased the incidence of alternaria in tomatoes in some locations. If you have moderate flea beetle feeding damage to your Solanaceae plants and you see any early blight starting you’ll need to control both the beetle and the disease. Pyrethroids should work well in controlling flea beetles. There is not much organically that will control flea beetles *once they are causing economic damage* (there are many things that can be done though, to reduce flea beetle problems before flea beetles cause damage, more at: [https://attra.ncat.org/attra-pub/download.php?id=135](https://attra.ncat.org/attra-pub/download.php?id=135)).

Flea beetle adults are generally small and range in size from 0.05 to 0.15 inch. They overwinter as adults on weed hosts surrounding the field, on residues of a previous tomato crop, or in the soil if the previous crop like tomato or eggplant...
was a flea beetle host. Some flea beetles like to feed on amaranths or pigweeds (Fig. 3) and will readily move from them over to your crop. Flea beetle adults chew small round holes in leaves, which make them look as if they have been damaged by fine buckshot, called “shotholing” (Fig. 4). The white larvae feed on underground parts of the plant, but this damage is usually not economically significant. Normally foliar damage to larger plants is not considered to be economically important, but feeding damage to small plants or seedlings can reduce stand or vigor of the plant. The other exception about flea beetles not being economic pests is when alternaria is associated with their feeding on smaller to moderate size tomato plants. There are several species of flea beetles in our area. Often times a species of flea beetle has a preference for certain plants i.e., some flea beetles prefer potatoes, tomatoes or other Solanaceous or nightshade plants, while others prefer broccoli, cabbage and other cole crops and still others can feed on many different plant families. There is normally a second generation during the summer and at times even a third depending on species.

Fig 3 Pale striped flea beetle feeding on amaranthus weed  
Fig 4 Potato flea beetle on eggplant