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IS SEED YIELD IN SEED ORCHARDS AFFECTED DIFFERENTLY IN THE PRESENCE OF ONE INSECT SPECIES OR A SUBSET OF SPECIES? PRELIMINARY RESULTS FROM FRANCE AND SWEDEN 2015-2016

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Seed orchards of coniferous tree species have been established in many countries to produce high quality seeds for forestation. However, the seed production in seed orchards is far below the demand, and one reason for the low and unpredictable seed production is damage caused by insects. Currently, only one insecticide is registered for use in seed orchards in both Sweden and France, and this is not active against all occurring pest species. The project in focus here aims to explore if it is a risk that pesticide targeted against certain pest species can affect other pest species through relieved intraspecific competition. This is an important issue in pest control in general when using more specific insecticides or pheromones (as opposed to broad-spectrum insecticides), when several species frequently inhabit the same resource. The risk is that species not or less affected by the insecticide can increase its feeding, resulting in a low effect of the treatment on seed yield and seed quality. To study an effect on yield and quality of seeds, strobili (female spruce flowers that will develop to cones) were protected by fine mesh bags from early season. We then inoculated the strobili with eggs of *Cydia strobilella* in two different densities and later the cones with larvae of *Dioryctria abietella* also in two densities. We also inoculated them with a combination of the two species in order to see if that had any effect on seeds. The preliminary results mainly focus on seed yield measured as easily extractable seeds, since seeds damaged by insects often get stuck to the cone by resin or due to damaged scales.

Keywords: *Picea abies*, spruce seed orchard, insecticide, pest management, cone and seed insects