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Box 302, SE-26123 Landskrona, Sweden. **Root aphid tolerance in sugar beet; field screening  
& resistance mapping.**

Root aphid tolerance is a key trait needed in sugar beet varieties in many production areas, including the western United States, Michigan and parts of southern Minnesota. Syngenta has developed a nursery for hybrid evaluation and line selection that relies on manipulation of various stresses to enhance pest pressure naturally occurring in the environment. Concurrently, to gain a better understanding of the heritability and create new tools for selection, efforts were undertaken to map the resistance in sugar beet. A mapping population consisting of 226 S2 lines was developed from a cross between a resistant and a susceptible line. All lines were tested in the field and scored for root aphid resistance. There was a clear segregation of the population into susceptible and resistant lines, and based on this classification we could map the resistance as a single locus on chromosome 4.