Different methods of evaluation of *Monilinia laxa* on apricot flowers and branches

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State of the art

- Organic apricot production is currently not profitable.
- The main obstacle to sustainable profitability is brown rot caused by the fungus *Monilinia laxa* (Adcr. & Ruhi).
- In the current apricot germplasm no source of total resistance has been shown, but some varieties are expressing interesting levels of tolerance.
- A good evaluation of the *M. laxa* symptoms is essential for a precise diagnosis of the infection and to appreciate differences between tolerant and susceptible varieties and genotypes.

Materials and methods

- Different evaluation methods were carried out on a bi-parental population between Bakour (tolerant to *M. laxa*) and Bergeron (susceptible):
  1. Visual evaluation of *Monilinia* symptoms was carried on the trees (from 0 to 100% of infection) 35 days after full blossom. Wheater dependant method.
  2. Evaluations Under controlled conditions on each genotype:
     a) A spore suspension (10^5/ml) of *M. laxa* was sprayed on flowers (20°C, 90% HR, 14 hours day), and % of infected flowers (necrotic petals) was measured 36 hours after.
     b) A drop of spores (10^3/ml) was inoculated with a pipette directly on the pistil when the flower was in stage F. Flower / branches infection was evaluated.
     c) A plug of *M. laxa* mycelium was added on branches (20°C, 80% HR, darkness), and 8 days after the length of the reaction was measured.

Results and Conclusions

- Different levels of infection were observed within the bi-parental population for the three controlled phenotyping evaluations.
- Symptoms in petals were not linked with the Monilinia infection according to our observations. The infection with the spores on the pistil test was very low.
- Good segregation was observed for the visual assessment and for the evaluation test on branches.
- There was not a good correlation between the visual assessment in the field compare with the evaluation of branches and flowers.
- There was not a good correlation neither between the three evaluations under controlled conditions.
- Based onto the observed variability, a QTL approach can be applied for assessing the genetic components involved in Monilinia resistance.

Length of infection (in mm) in branches of a bi-parental population 8 days after inoculation with mycelium of *M. laxa* under controlled conditions. In red circle the two parental Bergeron (susceptible) and Bakour (tolerant). Grey box indicates the Correlation Coefficient (R²) between the three evaluations.