

O.47 - Consequences of phytoplasma infection on canola crop production in the Canadian prairies

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Canola plants (*Brassica napus* and *B. rapa*) showing typical Aster Yellows diseases (AY) symptoms and canola plants showing no AY symptoms were collected in commercial fields of canola in Saskatchewan, Canada. DNA of 'Ca. Phytoplasma asteris" (AY phytoplasma) was detected by PCR technology in every canola plant showing typical AY symptoms and in 10-30% of asymptomatic canola plants. AY phytoplasma DNA was found in leaf, stem and root tissues as well as in normal-looking and misshapen seeds of infected plants. In canola plants showing AY symptoms, 25-80% of the misshapen seeds and 20-60% of normal-looking seeds contained AY phytoplasma DNA, while in asymptomatic infected plants, 9-20% of the misshapen seeds and 2-10% of the normal-looking seeds contained AY phytoplasma DNA. Misshapen seeds never germinated. Normal looking seeds sampled in plants showing AY symptoms or in asymptomatic infected plants germinated at 50-90%. AY phytoplasma DNA was detected in seedcoats from AY infected seeds, as well as in cotyledons, roots and stems of seedlings grown from AY infected seeds. Progeny plants grown from infected seedlings showed malformations such as an increased number of trichomes, lack of growing point, stocky stem, shrivelled leaves and a general growth delay. PCR performed on plants grown out of infected seedlings became negative after the 4 leaf stage. These results showed that AY phytoplasma are present in a large proportion of asymptomatic plants meaning that canola production losses will be higher than estimated from visual assessment of AY incidence. Moreover, the presence of phytoplasma DNA in canola seeds and in seedlings growing out of infected seeds raised the concern of possible seed transmission.