Cultivar Evaluation to Manage Clubroot on Canola

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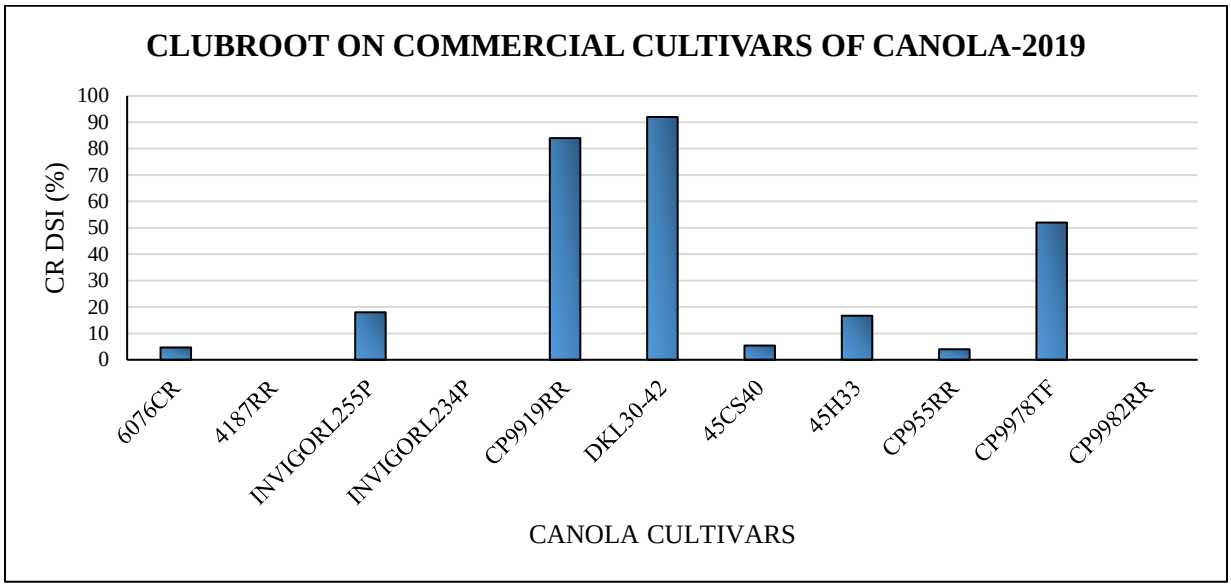
Objective: To evaluate the resistance potential of commercial canola cultivars against clubroot pathogen in field conditions.
Canola cultivars/varieties: Eleven commonly cultivated canola varieties were planted to determine the level of resistance against clubroot (Table 1).
Planted: First week of June (Hand planted after thorough tillage with a rototiller.)
Field design: Randomized complete block design (RCBD) with four replications.
Plot size: 3 ft. x 5ft.

Table 1: Commonly cultivated canola cultivars/varieties in Cavalier County.

Cultivar	Description
6076CR	BrettYoung Seeds
4187RR	BrettYoung Seeds
INVIGOR L255PC	BASF
INVIGOR L234P	BASF
CP9919RR	Croplan Genetics
DKL30-42	Cargill
45CS40	Pioneer (Corteva)
45H33	Pioneer (Corteva)
CP955RR	Croplan Genetics
CP9978TF	Croplan Genetics
CP9982RR	Croplan Genetics

Clubroot Evaluated: Early August (59 days after planting).
Clubroot Disease Index (CRDI):
CRDI: <30% of Susceptible Check = Resistant (R)
CRDI: 30-69% = Intermediate (I)
CRDI: ≥70% = Susceptible (S)
Note: To validate a clubroot research trial, the susceptible check should have > 60% of Disease Index.

Figure 1: Mean clubroot incidence (%) on various commercial cultivars of canola tested in 2019.



Results: Canola cultivars 6076CR, 4187RR, InVigor L234P, InVigor L255PC, 45H33, 45CS40 CP955RR and CP9982RR showed resistance to clubroot and were significantly different from other varieties tested.

Future research: Testing more commercial cultivars of canola will be helpful to growers and to monitor clubroot in available resistant varieties of canola.

<u>Monitoring clubroot in resistant varieties: (By Canola Council of Canada)</u>

"*Growers using clubroot-resistant varieties in clubroot-infested fields may experience some infected plants, which can be attributed to susceptible volunteers and off-types. Volunteer canola seed can germinate many years after it was last grown, and if this comes from a susceptible canola crop, then the volunteers will be susceptible. Off-types are a normal part of hybrid canola production – no canola hybrid is 100% pure, so there may be a small proportion (1 to 4%) of the seed that is susceptible.*

***When scouting, if more than 10% of seeded plants (do not count volunteers) are infected, that may indicate that the clubroot resistance is no longer functional against the pathogen population in the field. These infected plants may be restricted to a small patch which indicates a recent pathogen change*.**"

End Note: Practice crop rotation (one canola crop in three years).