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2011 REPORT - QUEBEC APPLE ORCHARDS
PEST TYPE: INSECTS, MITES AND DISEASES

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A. OVERALL SITUATION :

Extremely early bud break (March 22th, 13 days earlier than the earliest reported date in 50 years of historical records) and multiple frost events (at bud break, tight cluster and pink stages) characterized the spring of 2012. Luckily, our lowest temperatures were mostly recorded when and where trees had not developed enough to lose resistance to these temperatures, but we were really at 1C from a disaster. Compared to what happened in many other provinces and states, our crop was only slightly affected by these frosts, and a nice fruit set was observed following favorable conditions for pollination.

Summer was extremely dry and hot¹. Hail was common and severely affected one of the major fruit growing areas (South-west of Montreal: 35% damage on average). Harvested fruit were generally smaller, softer, sweeter and greener than usual in many orchards of Quebec, and fruit russetting (frost damage) was much more prevalent.

B. MAJOR PROBLEMS, UNUSUAL OR STRIKING EVENTS

Fireblight (*Erwinia amylovora*): In 2012, we suffered the worst fire blight epidemic in over 30 years. There was fire blight on apple trees as far North as Mt. Tremblant and Québec city. In the Oka region, all orchards had fire blight at different intensity levels. Conversely, much less disease was reported along the US border. In all cases, most symptoms were reported on late blooming cultivars like Cortland and Paulared. Growers were strongly encouraged to prune out disease as fast as possible to limit damage to affected trees avoid further spread during trauma events (hail, storms) to trees not hit during bloom. These recommendations lead to intensive pruning efforts requiring extra summer workers on many farms. Despite early interventions, some blocks were hit so hard they were simply pulled during summer. Symptoms of rootstock blight are currently showing up. Some blocks at the IRDA research farm were not salvageable, and at least 2000 trees on M9 (Paulared and Cortland) will be replaced. The situation was not limited to apple, numerous cases were also reported on ornamental plants. In retrospect, we expected some disease, but not at this magnitude level. Conditions were favourable for blight during bloom, but the outcome far outweighed what was expected. It is noteworthy that conditions favourable for blossom blight in 2011 resulted in only a few cases. Most likely a lot of fire blight went unnoticed last year and served as inoculum for the current year outbreak. The extremely early start of season in March also lead to the longest recorded period between budbreak and bloom, which possibly helped insects spread inoculum from old cankers to new areas.

Coincidentally, the IFTA summer tour was in Québec this year and they saw a badly hurt Cortland orchard from our research plot.

Apple maggot (*Rhagoletis pomonella*) populations and damage were higher than last year (which was already a problematic year) and higher than usual in all apple growing areas. Problems were not restricted to areas close to neglected orchards, but widespread. Could the withdrawal of OP as a summer insecticide be one of the causes for this?

Phytophagous mites (*P. ulmi*, *T. urticae*, *T. macdanieli*, *A. schlehtendali*) : spring weather was mostly unfavorable for dormant oil treatments and summer weather highly favorable for mite development. Not surprisingly, mites were more problematic than last year / than usual in all apple growing areas.

¹ 2177 DD5 (321 more than average) March-Sept ; 506 mm (52 less than average) April- Sept

Codling moth (*Cydia pomonella*) : populations were higher than usual in most apple growing areas, particularly the second generation. Control was achieved successfully in most cases, thanks to aggressive control schedules and residual activity of insecticides under dry conditions.

Powdery mildew (*Podosphaera leucotricha*): Contrary to last year, powdery mildew was abundant in many orchards this year, most likely because winter conditions were not very cold. The situation was made worse by fantastic conditions for spread of mildew during summer. Since the demise of sterol inhibitors and strobilurins, standard scab fungicide programs don't typically include products with efficacy towards powdery mildew, so reports of this disease are steadily increasing.

Stink bugs (mostly *Acrosternum hilare*, never *Halyomorpha halys*) were found feeding on and damaging fruit during the summer. What is usually a curiosity in Quebec orchards has been a widespread situation in 2012. Fruit damage reached high levels (20-30%) in a few blocks of Spartan and Empire. Linking damage to a particular species is difficult. Some growers applied neonicotinoid sprays against adults in August with moderate success.

Apple scab (*Venturia inaequalis*): Mature ascospores were observed in orchards well ahead of budbreak, and budbreak was the earliest on record. Consequently, we suffered through the longest primary season ever recorded. To make matters worse, spring was wetter than usual resulting in a difficult primary season. However, since summer was very dry, scab levels did not increase in secondary season and overall scab levels remained manageable. Nonetheless, we expect a very high inoculum level for 2013 because of the high primary scab incidence.

Apple leaf curling midge (*Dasineura mali*) : populations and distribution are steadily increasing year after year. Growers and consultants know little about the economics of control measures against this insects, but fear is on the rise. It was present in all growing areas in 2012, and in most orchards.

Apple pith moth (*Blastodacna atra*): larvae again frequently observed this spring in many orchards southwest of Montreal.

Plum curculio (*Conotrachelus nenuphar*): went unnoticed by many, which was highly unusual, although predictable, since hot weather in early spring presumably pushed adults out of their overwintering habitats well before post-bloom insecticides were applied, providing favorable conditions for effective control.

C. SURVEYED PESTS

Spotted wing drosophila, *Drosophila suzukii* : Although no specimen had been identified in 2011, the situation was completely different this year in Quebec. The insect was present in 30/30 monitoring sites where traps were installed : strawberries, raspberries, blackberries, blueberries and vineyards. Fruit damage reached 70% by Mid-August in some raspberry fields. Spinosins, neonicotinoids and OPs were used to control the pest with relative success.

Brown marmorated stink bug, *Halyomorpha halys* : no cases for this year in Quebec, but the insect has "established" in Hamilton, Ontario. Has not been found in canadian crops yet, but at least three insecticides have been registered in advance (methomyl, clothianidin and malathion).

D. OTHER OCCASIONAL PESTS IDENTIFIED* IN COMMERCIAL ORCHARDS THIS YEAR

Pests	Family	No. cases reported
<i>Pseudexentera mali</i>	Tortricidae (pale apple leafroller)	1
<i>Choreutis pariana</i>	Choreutidae (apple-and-thorn skeletonizer)	1
<i>Metcalfa pruinosa</i>	Flatidae (flatid planthopper)	1

* Thanks to Jean-Philippe L  gar  , agr. entomol., Quebec diagnosis lab/diagnostic clinic, MAPAQ,