...FROM THE DESK OF
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Between the Rows

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INSIDE THIS ISSUE:

Sprouting canola seeds: precocious germination

We all know that canola is a cool weather crop, it prefers cool nights and warm days, but when temperatures push the extreme on either end issues occur. In my July 18 edition of BTR, I discussed the immediate aftereffects of excessive heat to canola during the flowering period. One effect I didn't discuss was sprouting canola in the pod. Sprouting canola in the pod is called precocious germination. That is where the seeds are not dormant as they dry in the pod and begin to germinate. This can affect the grade of your canola, with more than 5% sprouted turning a #1 canola into a #2. So what does excessive heat in July have to do with canola sprouting in the pods in September?

As canola seed embryos develop, high concentrations of a hormone called abscisic acid (ABA) normally inhibit precocious seed germination. (ABA is an important phytohormone for stress tolerance and seed dormancy in plants.) ABA levels gradually decrease during seed filling and maturation stages, inhibiting precocious germination up until the seeds reach their low-moisture dormant state. This is normally a perfectly-timed process. However, heat stress can decrease ABA content. Because of low ABA content, seed dormancy is reduced, making seed more prone to germination within the pod.

Precocious germination was actually recently discovered in a 40 million year old fossil of an extinct pine species encased in amber. This finding in Scandinavia by Oregon State University researches is the earliest know occurrence of precocious germination.

So what can you do? Well your options are limited. Estimating the amount of sprouting in a field is difficult since it will usually be in the patches that were most in bloom during the heat wave. This year, fields ranged from 30-70% bloom during the heat in July,. So the first step is estimating the level of sprouting. Check pods in the areas that were in full bloom and the areas that were either past of prior to full bloom at that time.

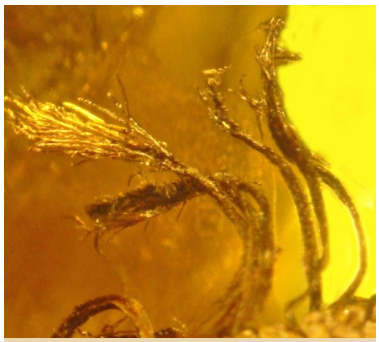
If the majority of the field is sprouted then some say swathing earlier, say at 30% Seed Colour Change instead of 60%, may help, but is this "cure" causing more loss than the "disease". Swathing too early will reduce the ability of later pods to mature, peppering out the back. What about a quick desiccation with diquat (Reglone)? Well if you spray earlier than 80-90% SCC, you will lock in more green. So your options are limited.

Research on precocious germination is looking at ways to deal with the low levels of ABA hormone at harvest. Biosynthesis of this hormone and actual application onto canola is years away though. Other research is focusing on the genetics aspect, where through genetic selection and alterations, we can manipulate the levels of ABA and thereby reduce the effects of precocious germination. This research will be critical in all aspects of how to enhance canola (and all crop's) yields, by making varieties more tolerant to heat, drought and more nutrient efficient in the future.

Sprouted Canola I found yesterday

Sprouted Canola (picture from web)

Sprouted Canola in sample (from web)



Precocious germination in a 40 million year old sine fossil in amber

Swathing, Tips and Tricks

It's become a rite of fall; your driving east down 58 from High Level, or south on 697 to La Crete and boom, you see it...the first swathed canola in the County, your first thought is wait, am I driving a DeLorean through the space time continuum back to 1985? You take a deep breath and blink, no I'm in my 2022 white Ford 1/2 tonne. But then suddenly you get the itch, you break out in a sweat, is it time? But hey, that looks real green, did they go too soon? Welcome to that annual rite of fall, deciding if and when you swath, or just say "forget it" and just straight cut it all.

Contrary to the popular myth popularized by a certain seed company, not everyone has sold the swather, nor do I believe they should. There are times when swathing is a good option. Most new varieties have straight cutting characteristics, but that doesn't mean you can't swath. In fact these properties actually make swathing better than it ever was before. With these varieties you can now delay swathing helping in situations where there is extreme variation in maturity. As well later swathing has shown larger seed size and higher yield.

So when should you swath? The rule of thumb is 60% Seed Colour Change (SCC), which is also the time you would do a pre-harvest application of glyphosate and Heat LQ. SCC means any degree of mottling or speckling of the seeds. To measure this you must open pods and check out the seeds, don't go by the colour of the pods or stems. Check the lowest pod on the main stem, then the middle pod and the top pod. The bottom pod should be fully turned, the middle pod should be mostly turned and the seeds in the top if not turned should at least be firm. If the total % of SCC is above 60% you should be good to go. If you have an extremely branched crop then you must evaluate them as well.

Do this examination in several places across the field, checking at least 5 plants at each location. Personally I like to examine a few of the more mature looking plants, as well as a few of the more immature plants. Then hop up in the box of the truck and get a sense for the percentages of each maturity level in the field.

With pod shatter varieties it has now become more profitable to be patient and more on the latter side of timing to swath.

Which Worm is this?

I recently found these two worms munching on the same canola plant. The one on the left is a clover cutworm, the one on the right is a bertha armyworm. Both of thee species belong to a group of worms we call "climbing cutworms" since they climb plants and eat the foliage instead of other cutworms that predominately only feed on roots and stems below or at soil level.

Clover cutworms tend to come earlier in the year and will be more concentrated in areas such as headlands and compacted areas. They also prefer canola to other species. Bertha's tend to come later in the season, be more generalized in the field, and actually prefer lamb's quarter's to canola. Also of note is, I found significant numbers of berthas in seedling alfalfa this year, both with or without a cover crop of barley.

Worms found at recent plot tour in La Crete

Bertha on seedling alfalfa, note leaf damage on the right.

Soil Testing: Book now

As harvest 2024 rolls on, we ne need to start thing about the 2025 crop. Planning for a successful 2025 crop, starts now. A big key to big yields and improved profitability is soil testing. Soil testing allows you to accurately determine nutrient levels and balances in each field. That way you can accurately determine your nutrient needs and spend your fertilizer dollar more efficiently. Our 2025 soil testing program will begin as soon as the soil cools down and we will be offering the same packages as last year, both the NutriScan instant results and A&L Lab tested results. Please call either Courtney at the Fort Office of myself directly to book your acres now.

Soil Testing : Book now

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In a Crop