

Agronomy Update

AUGUST 2020



What are Those White Heads?



By the last week of July this year, much of the wheat around the country had headed out and was starting to fill. If you were out walking your fields that week you may have noticed that even though anthesis had just finished, there was already a scattering of individual heads that had turned white prematurely. A follow up trip in the first week of August may have shown that there were additional heads, often in clumps, that were also just starting to turn colour. Observing this you may have assumed that you were dealing with a single problem that was progressively getting worse.

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A single issue? Or two completely different things going on?

While it is possible that you are only dealing with a single issue, its more likely that there are two completely different things going on. In this case, the wheat on the left is an insect problem caused by Wheat Stem Maggot and the one on the right is a fungal infection called Take All Root Rot.

Although they are superficially similar, it is actually very easy to tell them apart. Wheat stem maggots feed within the stem above the top node in the plant and leave a white head and stem above the flag leaf while the rest of the plant remains a healthy green. When you pull gently on the head, the stem should slide easily out of the plant, revealing chewing damage left by the larvae.



July 27, 2020



August 5, 2020 (same field)

According to Dr Kelly Turkington (AAFC Lacombe) there is really no treatment for Take All Root Rot except extended rotations. So he recommends regular scouting for this and other diseases so rotational adjustments can be made while the problems are still manageable.

There are no known controls for Wheat Stem Maggot, so it is fortunate that the pest is rarely of economic importance. While it is very common to see a scattering of these white heads in a field, it is generally nothing to be alarmed about.

The second picture, showing Take All Root Rot, is also easy to diagnose. It affects whole plants, not just individual heads, so if the main head is affected you can expect the tillers to be also. It may appear in patches, as the source of infection is often residue from the previous crop that provides an environment that allows root to root spread; or the disease can also just affect individual plants that have been infected by airborne spores. The entire plant will appear to be prematurely ripened. When the wheat is dug out of the soil, the stem just above the roots appears darkened and the roots themselves are stunted.



Stem is white down to the Flag Leaf



Stem is frayed or cut through above the node

Unlike Wheat Stem Maggot, Take All Root Rot can be of economic importance. Individual plants in the field may just be the result of random spores blowing into the field, but if you start to see the disease in patches, it may be time to think about your rotation, as the problem can quickly become an issue when cereals are grown too many times in a row. Because extended cereal rotations have not been common for many years now, this disease is far from top of mind for most producers. However, we tend to leave our residue on the soil surface these days, which provides the fungus with a place to overwinter, so it is still out there in low levels. There are also a couple of fairly recent innovations in management practices may help it make a come back, so it doesn't hurt to have a refresher on what it looks like.



Take All Root Rot (County of Grade Prairie)



Typical blackening of crown area above the roots

The management practices that may favour the increase of Take All levels are in-season nitrogen applications and liming. Top dressing N for added protein and yield has garnered renewed interest over the last few years as we push to maximize returns on wheat. In fact we have top dressed N at our training field the last two seasons, and the results are very encouraging. Liming is also a subject of a lot of discussion these days. A lot of the interest in liming arises from its potential to slow the spread of clubroot in canola. High in-season soil nitrogen levels have been shown to increase Take All fungal populations. The fungus also thrives under the higher pH conditions that are brought on by liming, so we may be seeing more of these clumps of prematurely ripened wheat in our fields if these practices catch on.



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