

Steele County **Ag Alert**



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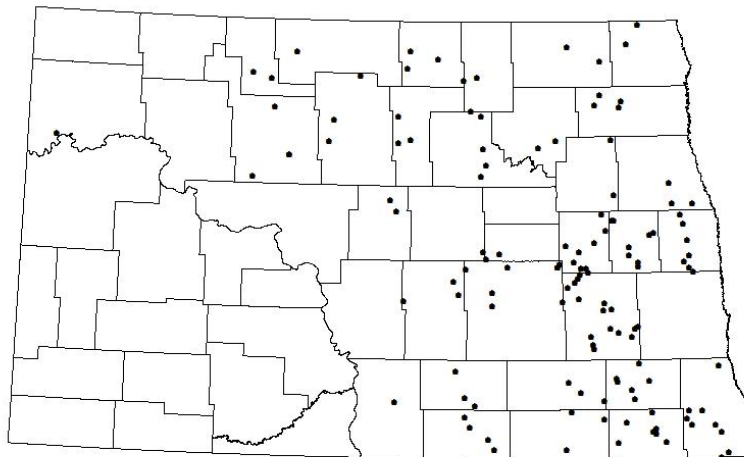
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NO SOYBEAN APHIDS

The IPM Crop Scouts have surveyed over 80 soybean fields last week and no soybean aphids were observed in North Dakota. However, soybean aphids have been reported sporadically in Iowa at low densities (Source: E. Hodgson, Iowa State University). So, continue to be vigilant in scouting. We usually observe our first soybean aphids the last week of July or early August.

Soybean Aphids

June 30 - July 11, 2014



Percentage of plants infested with more than one aphid



Sub-Surface Water Management

By: Tom Scherer, NDSU Extension Ag-Engineer and Hans Kandel, NDSU Extension Agronomist

Tile drainage does not remove “plant available” water from the soil; it merely removes “gravitational” water that would drain naturally, if unimpeded by confining layers in the soil. The greatest benefits of tile drainage are typically realized in wet years. Drainage promotes deep root development and crops will often have better access to soil moisture during drier parts of the year. During extremely dry growing seasons it is certainly possible that a tile-drained field might have less available water at some point during the growing season than a non-drained field. Whether or not such an effect would offset the early-season positive effects of drainage is unknown, and is highly site- and year-specific. In general, where poorly drained soils exist, crop yields

will be more uniform from year to year with tile drainage. Drainage control structures (also known as controlled drainage or drainage water management) can be installed to provide the potential for limiting the release of drainage water to conserve more soil water in the root-zone. Similarly, the pump in a lift station can be turned off when there is a concern about drier growing conditions.

The economics of tile drainage systems depend on crop yield response, initial capital investment for the materials and installation of the system, and any annual operation and maintenance costs (such as electricity for pumped outlets). Although crop yield response to drainage can be assessed directly, the impacts of inadequate drainage on soil quality (structure, microbial activity, etc.) are more difficult to measure and assign economic value.

Many field crops show a positive response to drainage (on previously poorly drained soils), often with the best response from a combination of surface and tile drainage. The level of yield increase for a given year depends greatly on how poorly drained the soil was prior to drainage, and the timing of seasonal rainfall. Research, in various regions, has shown that over many growing seasons, average yields may increase around 10 to 15 percent, depending on the aforementioned factors. In addition to yield increases associated with adequate drainage, there may also be reductions in operating expenses on the farm due to reduced cropping inputs, less power consumption, and timely field operations. The cost of tiling depends on the materials used and the price of installation.

For more information see NDSU publication [Frequently Asked Questions about Subsurface \(Tile\) Drainage AE1690](#)

Soybean Root Rots

By: Sam Markell, NDSU Extension Broadleaf Plant Pathologist and Berlin Nelson, Soybean Pathologist

We have received many questions about dying soybeans. The cause is, at least in part, severe root rot in much of the state. The reason we are seeing so much disease this year is related to our long wet spring. The abundant soil moisture provided a perfect environment for infection and disease development right after planting.

Most of the photos we have seen show classic symptoms of pre- and post-emergence damping off (the only difference is whether the plant dies before it has emerged or after it has emerged; the result is the same). Damping off and root rots can be caused by many different pathogens; *Pythium* species, *Phytophthora sojae*, *Fusarium* species and *Rhizoctonia solani* all come to mind. Unfortunately, it can be very difficult to determine which pathogen is causing the primary disease. In many cases, it is likely that multiple pathogens are acting synergistically to cause the damping off. In some cases there may be one primary pathogen, but as soon as the plant begins to die it is often colonized by other fungi, making identification difficult.



What to expect later in the season?

There are many small areas of dead plants in soybean fields in the area. The disease generally won't 'spread', but it is possible that 'healthy' plants may not look very healthy a month from now. The reason is related to the severity of the root rot infection and plant stress. While the most severely infected plants are already dying, plants that aren't as severely infected may appear unaffected. However, those moderately infected plants have compromised root systems and may struggle as the season progresses. This is particularly true if we turn dry and/or hot in August. In that situation, it is possible that the damage to soybeans may be more extensive than we are currently seeing. If temperatures remain moderate and rainfall is sufficient, we may not see any 'spread' of disease.

What to do next year?

There is no management tool that we can use to help the soybeans this season, but it is important to consider your options for upcoming seasons. If you have severe root rots, you might consider lengthening your rotation, using a fungicide seed treatment, using a 'defensive' variety, and incorporating a *Phytophthora* resistance gene (or switching it if you know for certain *Phyophthora* is your pathogen). Ultimately, the environment is going to make a huge difference on how much root rot we have, but if you stack the deck in your favor, you will be better off.

Not Sudden Death Syndrome.

Sudden Death Syndrome refers to a specific disease can suddenly kill plants in the mid-reproductive stages. The plants look healthy, are setting pods, and then suddenly die. Fortunately, Sudden Death has not been confirmed in North Dakota. For now, this is one severe disease issue that we are watching for, but don't have to actively manage yet!



Damping off, caused by root rot pathogens: Photos sent to me by an area agronomist

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EXTENSION SERVICE
STEELE COUNTY

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