

605 Water Efficient Plants

#RealisticRegenAg | Surviving another drought means making our plants the most water efficient we can. While some of the things can be done immediately, most of the things require a long-term plan. I've heard it said the best time to plan for a drought is when the last one breaks. We might be on the cusp of this one breaking with the recent snowfalls, but it's too early to tell. In this episode I'll go over all the ideas I have to make our plants more water efficient in hopes you can apply some of the easy practices now and start planning for the future this season.

Welcome to the sixth season of Plants Dig Soil, a podcast about #RealisticRegenAg. I'm your host, Scott Gillespie, and I'm an agronomist from the western Canadian prairies specializing in climate-smart agriculture. I discuss scientifically proven practices that benefit the planet and, just as importantly, farmers' economic sustainability. Be sure to visit my website, www.plantsdigsoil.com, for resources and information about the services I that I offer for farmers and agribusiness.

Transcript is available:

<https://www.plantsdigsoil.com/podcast/water-efficient-plants>

Newsletter signup:

<https://mailchi.mp/plantsdigsoil/newsletter>

<https://www.linkedin.com/newsletters/6944029544697802752>

Realistic Regen Ag Channel (WhatsApp):

<https://whatsapp.com/channel/0029VaBofw37NoZxtgHSRI3S>

Practical Regeneration: Realistic Strategies for Climate Smart Agriculture

<https://www.plantsdigsoil.com/books>

My consulting packages:

<https://www.plantsdigsoil.com/pricing/#consulting>

Speaking, Teaching, & Workshop Design:

<https://www.plantsdigsoil.com/speaking>

My funding service offerings:

<https://www.plantsdigsoil.com/pricing/#paperwork>

SCAP program details <https://www.alberta.ca/sustainable-cap.aspx>

OFCAF program details <https://rdar.ca/funding-opportunities/ofcaf>

My course: Profitable From the Start: Cover Crops for the Prairies:

<https://plantsdigsoil.thinkific.com/courses/cover-crops-prairies>

Email: scott@plantsdigsoil.com

X (aka Twitter) (Scott): <https://twitter.com/scottcgillespie>

X (aka Twitter) (Company): <https://twitter.com/PlantsDigSoil>

LinkedIn (Scott): <https://www.linkedin.com/in/scottcgillespie/>

LinkedIn (Company): <https://www.linkedin.com/company/plants-dig-soil>

YouTube: (Company): <https://www.youtube.com/@scottcgillespie>

Podcast Subscription Apps: <https://podcasters.spotify.com/pod/show/scottcgillespie>

Whether irrigated or not, all the land in southern Alberta is starting with a subsoil moisture deficit. Generally, this is true across the Prairies of Canada and the Plains of the United States. There are exceptions, but the overall trend is drought. It will be a challenging year in my area even if there is a return of normal rains and excellent snowfall in the mountains. This past weekend we got a great gift of moisture. The frost was mostly out of the ground and some green was showing in the landscape. My tulips and crocuses were poking through. A thawed ground can take up moisture, so hopefully all the wet snow that came will soak in as it melts.

The most impactful practice you could have implemented was to plant your wheat in March. The next best will be to plant it as soon as possible. Why is this? Local research and farmer experience have proven that as soon as the ground is above 0°C you can proceed. Using a standard fungicidal seed treatment is a must to protect against early-season stress. If wireworms are a concern, then using an insecticide with wireworm activity should be included. I saw on X (aka Twitter) that local researchers were out ahead of this recent snowstorm planting durum wheat. The fields were workable since they started out so dry.

This makes for water efficient plants because they go through their development stages when it is cooler. A plant uses less water to cover the soil at 15°C than at 25°C. Yes, it takes longer, but planting early means it is still ahead of the later planted wheat. You may argue the risks of plants that get too far developed at risk of a late-season frost during heading. This is indeed a risk, but you need to weigh it against getting your crop germinated and filling grain before the summer heat arrives.

An even germination is the second key to why ultra early seeded wheat works. The researchers that planted ahead of the snow were planting into dry soil. When the snow melts it will wet the top few inches of soil, hopefully a lot deeper if the melt is slow and steady. Regardless, what this means is that all the seeds get moisture and when the temperatures get above 5°C they will germinate and emerge at the same time.

No one likes to see patchy emergence. Not only does it look bad, but it also makes timing for herbicide applications tougher. If you are under irrigation, it means a possible fungicide and/or plant growth regulator are tougher too.

We have many climatic regions, from the foothills to the prairies. You'll know your zone best and can make the best decision on this. Keep in mind that you'll never get everything planted ultra early. Starting early isn't about reaching the optimum; it's about getting it all done before you miss the moisture.

If you were able to get a winter crop planted this past fall, you are ahead. It will head early and beat much of the summer heat. If any crop is at risk of a late-spring frost, this is it. In my experience, I have never seen a crop lost from early-season frost. Again, you know your area best, so go by your experience.

I've had questions about what happens if the seed of a winter cereal was planted and did not germinate. While I have no direct experience with this, I have been reading up on it and have found that although it is not ideal, the winter crop will germinate at the first moisture above 0°C and will still produce a crop. It appears that even just the seed sitting in the soil is enough. It's possible as well that even taking up some moisture and then going through a freeze is enough. My advice: don't discount it in the spring because it didn't germinate. Do all your other seeding first and then evaluate it.

Another crop that can benefit from ultra-early seeding is camelina. I've seen it come and go as a promising new crop for the Prairies, but it seems to be making a comeback. A limited amount of the winter variety was planted this fall. The spring variety will be available to try this year and is much more tolerant of cold than canola or mustard. The advice I've been given is to plant as early as possible. I don't have experience with it, but until farmers try it, it's hard to know. It matures very early—late June or early July—so again, it beats the main heat of the summer. I wouldn't try huge acres, but it's worth considering in a dry year.

You'll notice I haven't mentioned any biological products. I spend my time investigating regenerative agriculture systems, and I've yet to find anything that can outperform good agronomic practices in the field. Many of these products work well in the lab, but they seem to fail in the field. You'll also notice that I recommended a standard insecticidal and fungicidal treatment. The research has been conducted using these products and so I am only confident recommending them. Biologicals just don't have the third-party research behind them. Until they do, I can't recommend them based on farmer testimonials on product websites.

For all the money you could spend on them, I'd encourage you to consider alternatives. Moving to the long-term planning I was talking about, consider ways to leave more stubble on the landscape. Stripper headers are gaining popularity again. It's a simple concept: Instead of taking in most of the plant through the combine just strip the head off and leave as much standing stubble as possible. Making it work can be challenging, especially with lodged crops, but it has potential.

While this can help trap more snow, it appears that the greater effect is water use efficiency. Crops grown in tall stubble aren't exposed to as much wind, and the soil doesn't lose as much water to evaporation. In a wet cycle, this could be a problem, but in the current drought cycle, this could be just what is needed.

Fallow is a consideration this year. I know this doesn't work well for crop insurance and cash flow, but it might be something to think about. Fallow does store more water than growing a crop, but it comes with the drawback of contributing to soil salinity. This is because evaporated water draws up salts and deposits them on or near the surface. Salts affect the plant's ability to take up water and nutrients. While white patches on the surface are telltale signs of salt, a small increase may not show directly but be a hidden hunger affecting your crops. Only a soil test will help you see where you are.

If fallow makes sense on some of your acres this year, I'd consider a cover crop grown at some point in the season. It could be something grown in spring but if you can establish something now you likely have enough moisture to try growing a crop. Instead, use a fallow period and be ready to seed a warm season species in the mid-summer or a cool season species in the late summer.

Why would you do this?

If the cover crops use the same amount of water as would be evaporated off, you are ahead. Water through a plant adds energy (sugars from photosynthesis) and organic matter to the system. Water evaporated off the soil surface pulls up salts and when there are no living roots to add exudates to the soil it forces the microbes to break down organic matter for energy, leading to a net loss of organic matter. If you have cattle, this could also provide fall grazing opportunities.

If you are considering this the OFCAF or the S-CAP programs can help offset the cost of the seed and seeding. Each program has its pluses and minuses. There are links in the description for these programs if you want to look at them. If you don't have time for that or want some clarity, get a hold of me and I can help you navigate them.

I don't make any money promoting the programs but my fees for working with you can be rolled into the application. Besides that fact, I'm interested in helping people try new things that should have a net benefit to the farm. Funding just helps getting over the startup cost of both trying a new practice and getting independent agronomy advice.

If you want to dive even deeper, why not check out my new book? There is a chapter in it specifically covering what to do when the rains don't come. It's called Practical Regeneration and it's available anywhere you buy books. Search for it or go to my website for links and more.

Thanks for listening. If you're not already subscribed, please hit that button right now. Also, consider subscribing to my newsletter with your email or on LinkedIn. It's just once a month and gets past all the social media algorithms. If you like to see a few interesting articles a week about regen ag check out my group on WhatsApp. A link to that is in the description as well. Talk to you again next time.