

Episode Title: Harnessing Fire for Farm Health

Topic: Benefits, Risks, and Planning of Prescribed Fire on Farms

Summary: Prescribed fire has evolved from ancient, indigenous land care to a modern toolbox in conservation and sustainable agriculture. Mechanization and chemical substitutes led to its decline, but renewed interest—rooted in both ecological science and cultural revival—has reinvigorated prescribed burning as a vital, multi-purpose land management practice. Amanda Stallman joins us for this episode to provide valuable insight for modern practices and resources like local fire departments, colleges, and land trusts can help farmers learn and utilize prescribed fires.

Expert: Amanda Stallman

Episode Quote:

“There's a lot of risk involved when it comes to prescribed fire. And that's why planning and making your burn plans are so important when it comes to mitigating that risk. When done properly, it is a very efficient way to remove invasives on your property without getting injured.”

– Amanda Stallman

Transcript

00:10 E Ritchie

Welcome to the *FarmSafe* Podcast brought to you by the Great Plains Center for Agricultural Health. In the blink of an eye, an injury can change your life and your farm forever. During each episode, we share first-hand stories and real-life tips for making safer and healthier decisions while on the farm.

E Ritchie

Humans have used fire for land management for millennia, starting with Indigenous groups' cultural burning for various purposes. European colonists adopted similar practices, including using fire to clear fields and maintain pasture and crop lands. During the 19th century, farmers in the US and Europe employed post-harvest burns and stubble burning to control weeds and prepare soil. The 20th century saw advancements in flame weeding, from simple torches to mechanized burners, initially used for weed control. However, the rise of synthetic herbicides led to a decline in flame weeding. The organic agriculture movement later revived interest in flame weeding, along with the broader adoption of prescribed fire for wildfire prevention, ecosystem restoration, and managing invasive species. Prescribed fire practices have a long history, with significant scientific contributions demonstrating its benefits. While recognized for its benefits, widespread adoption faces barriers including regulations, finances, liability concerns, and public perception.

E Ritchie

To help us dive a little deeper into understanding the process of prescribed burns, we are joined by Amanda Stallman. Growing up on the farm, Amanda first experienced prescribed fire in the pasture for her family's cattle. Years later, after graduating from Kirkwood Community College with an Associate of Applied Science Degree, specializing in Parks and Natural Resources, she worked for local cities, county and non-profit agencies, completing over 700 acres of prescribed fire on many different land types and ecosystems throughout her career.

E Ritchie

What exactly is a prescribed burn and how does that differ from a wildfire?

A Stallman

Prescribed fires have the name intended for the actual action. So, they're an actual prescription for the land, meaning that that ecosystem or eco type had relied on fire at one point or another in time of history. And with the removal of fire intervals through

society's beliefs and concepts, it has caused a lot of detriment to that landscape. So now as natural resource managers, we prescribe fire back to the lands that it originally resided on. Versus a wildfire per se is unintentionally or intentionally started and is out of control or out of the hands of prescription, meaning prescribed fires are usually going to be very well planned, well thought out, executed in appropriate manners, styles, and safety techniques, while an escape fire could be started from car sparks to a local member visiting a national park or intentionally caused arson. So, they're not planned and can result into a lot of damage to nearby farms, properties, or government parks.

E Ritchie

Do wildfires sometimes happen in the absence of controlled fire or prescribed fire?

A Stallman

Absolutely. I love you brought this up. For America's history, there has been a long culture of fire suppression. Smokey the bear is a great indicator of at some point in time, we have moved from loving and respecting fire to fearing fire and the problems that it causes. And realistically, a lot of ecosystems, especially here in Iowa, rely on fire. And so, with the lack of intervals of fire or including that fire suppression. What some ecosystems have done over time is create a very large thatch layer or a layer of dry, dead plant materials that stack up on either the forest floor or the prairies floor for five to 10 to 20 some odd years. Without those regular intervals of burning, that thatch layer grows and becomes a matchstick waiting to start at any point. So, if you're burning more frequently in the ecosystems that require it, you're actually going to prevent wildfires from occurring. Absolutely.

E Ritchie

So, prescribed burning has been practiced by indigenous communities for generations. And so how do the traditional practices influence modern methods?

A Stallman

Oh, that's a beautiful question that I might not have the most extensive knowledge on. But with some of our natural history, Indigenous cultures have utilized fires not only for ceremonial reasons, but for prescribed fire reasons. Some of those historical instances that I know of is certain tribes knowing and having the botany knowledge built in within their tribes to know that prescribed fire actually regenerates the prairie plants that they either consume or rely on for medicinal or ceremonial purposes. So, they knew the deep science behind prescribed fire long before it was ever published. And so, their knowledge is still seeping into science today over time and finally getting the credit they long, long fully deserve.

But a lot of their practices we utilize and learn from. We grow together learning from some of the techniques that have been historically used by those cultures for sure.

E Ritchie

What goes into planning a safe and effective prescribed burn?

A Stallman

When it comes to planning a prescribed burn, one of the most important things that the farm really needs to know is the local system, either county system or your city system needs to first be notified or aware that you're going to be performing a prescribed fire. So, on our protocol, the first thing we do when we get on site is we call dispatch and we let them know the unit that we are gonna be burning, the address and the acreage that we're gonna be burning that day. And then once we finish our prescribed burn, we will go ahead and call dispatch again to inform them that the burn has closed so that local officials are fully aware that the fire on the ground is appropriate.

A Stallman

Not only that, it takes extensive burn plan preparation where you're most likely going to be having a map at hand of your parcel and you're going to have to map and prepare and look at the weather, if not a week ahead of time, all the way up to every single day before your burn as those weather conditions can really determine if you're able to burn that day or not. So weather, notifying the correct officials, and then also understanding your land and what fire will do to your land once you put it on there. Knowing the full objectives,

you're trying to complete on your property is really going to help your burn plan process and in the process of keeping you, your structures, or your animals safe. There's a lot more that we could dive into the process of burn planning, but I would say those three are some of the biggest ones to start focusing on when you're starting to think about adding prescribed fire to your wheelhouse of management.

FarmSafe Music

E Ritchie

When performing a prescribed burn, it is important to know how to protect yourself on the fire line. It is critical to select Nomex or flame-resistant cotton materials when purchasing fire protection clothing.

FarmSafe Music

E Ritchie

So, you mentioned weather. How do landowners determine the best time of year or weather conditions for a burn?

A Stallman

It absolutely depends on your parcel. If you are having a native prairie waterway strip, it's going to be dependent on what species are in that strip versus grassland. So, let's say you promoted and planted some native short and tall grasses for your farm animal species. That is going to require a different burn regimen than those prairie forbs, or flowers, for example. Typically, a lot of managers, natural resource managers, will burn in the fall and spring based on certain goals they're trying to acquire. Others may burn in the early tail of summer to remove invasive species such as reed canary grass. So, it's really goal dependent on the land.

If you're trying to remove invasive woody species, you might want to choose a hotter time of year, where that fire can get a little bit hotter. But really when it comes down to weather and choosing the best time of year, it'll be good to potentially get some additional information to learn about how your land can be affected by fire before you go ahead and put it down on the ground.

E Ritchie

So, what is the benefit of a farmer converting land to be relied on by fire as a management technique?

A Stallman

One of the great benefits is coming to your waterways, for example. So, in your fields, they can be typically found and filled with a lot of invasive grasses, which have a poorer root structure than some of our native grasses or native forbs.

Some of our native prairie systems, when replaced into the waterway systems, actually do a really great job of keeping that soil holding into your field, as we know that losing topsoil is one of our biggest issues here in Iowa. So, these prairie plants not only keep and retain that topsoil in your fields, but it also filters any of the rain or runoff that might be going through these waterways.

Therefore, stripping a lot of the herbicides or pesticides that may have been applied all throughout the seasons and preventing them from going into our waterways. As we know here in Iowa, our waterways are more and more polluted each day through some of our applications. To put in prairie strips in your waterways, this is a great way to not only prevent that infiltration in our stream systems, but also the health of all of our ag animals when they go to either drink from these water sources or potentially source from these water sources.

E Ritchie

What are some of the major risks associated with prescribed burns and how are those risks managed?

A Stallman

With any farm fire, there are tons of risks. We got our buildings, we have our structures, we have our herds, we have a lot of things we want to protect. In that idea, we have a lot of loss that we will have to mitigate. So, there's a lot of risk involved when it comes to prescribed fire. And that's why planning and making your burn plans are so important when it comes to mitigating that risk. When

done properly, it is a very efficient way to remove invasives on your property without getting injured as well, where you're not utilizing the large tractors or the large equipment in order to be on the land. Although it can be very risky in the idea of fire and losing a lot of your structures, when managed and done appropriately, you're utilizing less fuel, you're utilizing less equipment to do management on your property, and you're utilizing a lot less energy as prescribed fire can really absorb in an area in a quick amount of time, where that mechanical management instead could have took weeks on end. So, in general has some risk, but has some great benefits from those risks.

E Ritchie

How do you deal with concerns from nearby communities about smoke or safety?

A Stallman

One of the things that we did on our farm growing up is we notified our neighbors that we were potentially going to burn that week. So, letting your community around you or around your farm know that you're going be putting smoke in the air is a great way to reduce the alarm or attention to your property. Then also, as I mentioned, calling dispatch prior to your burn and then after your burn is really gonna notify either your county or local city where if they're getting improper 911 calls about the fire on your property, they're gonna be able to communicate and redirect that individual so you don't have to in that case and scenario.

E Ritchie

So, if a farmer is listening and they're curious about trying a burn for the first time, what's your best piece of advice?

A Stallman

My best piece of advice to a farmer who is looking to add prescribed fire to their land prescription is to one, not do it alone.

It can be very common or sometimes easily manageable to do a prescribed fire with one or two individuals. But the more individuals that you have on that burn, the safer your property is going to be, the safer you're going to be, and the safer your surrounding neighbors are also going to be. So highly, highly recommended getting a volunteer group, getting your family together to be there to help support you during that process, as fire is very uncontrollable at times, though this can be prescribed, especially with weather being a factor. Having that backup plan and those additional people would be a great choice.

E Ritchie

Can you recommend any resources, training programs or organizations for people who want to learn more?

A Stallman

So, some of the first organizations I would recommend is getting connected with your local fire department. If you do not have connections or know some of those folks, it'd be a great resource to know how they utilize or manage structure fires versus wildland fires. Those who are local to the corridor area, the Cedar Rapids, Iowa City area, another great resource would be some of the local colleges here in Iowa, such as Kirkwood Community College, Iowa State Extension Office, and University of Northern Iowa with the Tallgrass Prairie Center. All three of those have free online resources to share about either transforming your property to have those prairie or tallgrass strips, alongside with potential prescribed fire classes.

So, Kirkwood Community College provides a prescribed fire class where you can receive your certifications and learn more. And then lastly, I would like to recommend private organizations such as Borough Land Trust, the Nature Conservancy or Iowa Natural Heritage Foundation. All three of those will do prescribed fires on their lands and potential fee for services, meaning that they will go to a landowner's property to do that prescribed fire for them for a certain fee. So if not only utilized as a knowledge source, but as an actual source to complete the action, all three of those groups are great mentions.

FarmSafe Music**A Stallman**

So, some of my background stems from growing up on a farm in Amana, Iowa. And with my uncle growing up there, we did prescribe fire on our property on the farm. We mainly burned in our grasslands where our cattle resided. So, I wanna bring this example up as there's different types of methods that you can use to keep your property safe, such as utilizing your hardscapes, your roads.

A Stallman

So as a little 11-year-old, I stood on the edge of our driveway and road and we burned all the way up to the gravel as that fire doesn't like to cross any hard surfaces. So, we utilized what is known as natural breaks in our burn. This is something I'm going to encourage other farmers to do as it is a cheaper and safer and a more efficient way than utilizing a whole bunch of resources such as water in that example.

And I like to share this example as this was an action done about 15 years ago now, about a decade or so ago. There are farmers here in Iowa who have been utilizing prescribed fire practices for some time. It's more about just sharing that information and getting it out to others so they can do the same thing in the same light.

E Ritchie

Prescribed burns, unlike wildfires, are planned and controlled fires used to manage ecosystems that rely on fire. Prescribed fire has evolved from ancient, indigenous land care to a modern toolbox in conservation and sustainable agriculture. Mechanization and chemical substitutes led to its decline, but renewed interest—rooted in both ecological science and cultural revival—has reinvigorated prescribed burning as a vital, multi-purpose land management practice.

Effective planning for a prescribed burn involves notifying local authorities, meticulous weather monitoring, comprehensive land evaluation, and understanding the desired outcomes. Protecting surrounding communities involves communicating burn plans well ahead of time and keeping clear communication open with dispatch. Knowing the specific vegetation types being managed is vital to determining the optimal time for burns. Choosing the best season involves considering various plant growth cycles and whether the goal is eradication of invasive species, restoration of prairie lands, or something else.

The benefits of prescribed burning to farmers include improved waterway health by filtering pollutants through native plant systems, protecting topsoil, and minimizing the use of pesticides, while simultaneously reducing reliance on heavy machinery for land maintenance. While risks, such as the potential for property damage, exist, careful planning can mitigate them.

E Ritchie

We have included several links under the resources for this episode to help you become more familiar with prescribed burning practices. Resources for this episode include a series of prescribed fire 'hot-to' videos from the Tallgrass Prairie Center and ISU Extension, a pdf outlining basic smoke management practices, as well as a link to the Local USDA Service Center Finder, where you can find a prescribed burn plan template or job sheet and a list of local contractors based on your state and county.

E Ritchie

Listen in on the *FarmSafe* podcast to join in on the conversation about keeping safe on the farm.

We want to hear from you. Share your stories about health and safety issues on the farm, about injuries that made you change the way you work, or about the ways you keep yourself and others safe on your farm. Also let us know if there's questions you have or topics that you want to hear about on the air. You can visit our website, gpcah.org, or email us.

Original music for the *FarmSafe* podcast was written and performed by Ben Schmidt.

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Episode Resources

Prescribed Fire 'how-to' videos:

- Tallgrass Prairie Center – “Basic Prescribed Fire Techniques – Demonstration Burn” and “Conducting A Prescribed Burn” videos towards the bottom: <https://tallgrassprairiecenter.org/videos>
- ISU-Extension – Planning a prescribed burn series of videos: <https://www.youtube.com/playlist?list=PLpkEijv9k6M1hUflhvVGvqMt1p7H-v3Oc>

Basic Smoke Management Practices

Local USDA Service Center Finder/Contact – Find prescribed burn plan template/job sheet and local contractors list: <https://offices.sc.egov.usda.gov/locator/app>

Photo

