

Responding to Field Fires

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There has been a rash of field fires over the last few dry years. Most of these have been in the central and western part of the State. The approach with dealing with field fires is three pronged: prevention, mitigation, and documentation.

The best solution to field fires is to try to avoid them. Producers know this and often have water tanks or trucks in their fields and extinguishers on the equipment. Blowing off machines at regular intervals and shutting down when conditions get too extreme are other common precautions designed to keep fires from starting. Occasionally this is not enough and often it is something or someone else that starts the fire.

It is important to have a plan of action in anticipation of fire damage independent of the cause and the extent. It is vital to document everything associated with the fire and to make every effort possible to mitigate the damage. Inform everyone with involvement (landlord, insurance agent, etc.)

The producer should attempt to get an aerial or satellite image so that the area of the damage can be documented. Alternately use a field mapping program or get a consultant with this capability to make a ground based map of the damage. **Third-party verification is important. Try to have someone independent or preferably someone chosen by both parties take the samples and submit them for analysis.**

1. Use a hula hoop or even better a square made with 3/4 inch PVC pipe or other device to take geo-referenced samples of surface residues. Take a photo of the square or hula hoop and then pick up all of the residue inside borders (a hand-held vacuum can be used to gather the duff). This can be dried, weighed, and sent somewhere for a complete nutrient analysis. Having someone do a complete analysis with inductively coupled plasma (ICP or ICAP) gives the total nutrient content of the material. Using these data and the weight of the sample the total nutrient loss can be calculated. The liable party should be responsible for the nutrients lost. More information related to nutrient loss from crop residue fires can be found in SDSU Extension Extra 8164. There is loss in residue also that needs to be replaced. Obviously, some things cannot be replaced but this is a start. Soil samples to measure difference in soil moisture when the crop is established could be another tool at times.
2. If possible try to obtain an agreement that allows documenting the yield differences for several years. The first year will be most dramatic but it goes longer than that if the fire was hot. If tillage was used to stop the fire or as an emergency measure to stop wind erosion after the fire, make sure to include the tilled area as part of the damaged area.
3. If the fire occurs in the fall and there is moisture and time, try to plant a diverse cover-crop to protect the crop surface from raindrop splash and blowing. Crops like oats, winter wheat (or preferably rye or triticale), millets, milo, and perhaps a little flax or something similar provide resilient residue. The choice will depend on the time

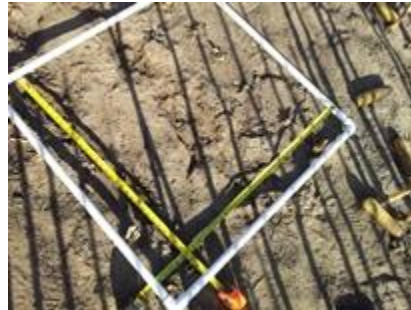
available. The rye and triticale are more aggressive but they are more expensive on a per plant basis than bin run winter wheat or oats. Annual ryegrass is also good. More roots are better. The cost of this should be the responsibility of the person responsible for the fire. Herbicide residues can be an issue even if there was a fire.

4. Try to rotate the field to a high residue crop the next year or maybe two.
5. Alternately, let the winter annual cover-crops like winter wheat grow. This may not be insurable. If that is the plan, keep the flax in the mix but leave out most of the oats.
6. After a spring fire, producers should build high residue crops such as wheat, corn and oats into the rotation as soon as possible as well.

The individual responsible for starting the fire (or their insurance company) should be responsible for the lost nutrients, the cost of the cover-crop and seeding the cover, and yield differences that can be documented for a reasonable period of time. This should be at least 3 years and maybe 5.

The insurance companies do not normally want to extend the settlement. They want to settle quickly. The residue lost can be valued as hay price also but there is more loss than that. They will point to neighbors that have taken the residue and tilled the land. Tell them that does not apply to the long-term no-till situation.

Good luck.



Burned area after sampling (left) and before sampling (right)



No-fire area after sampling (left) and before sampling (right)

The above frame and photos are courtesy of Jon Hofer, independent consultant.