



ADVANCED AG SYSTEMS'

# Crop Soil News

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**"It is the crops  
that feed the  
cows that make  
the milk  
which creates  
the money."**

**Advanced Ag Systems**  
Research, Education, Consulting

I am writing you from our new home in Tennessee with sunny days, white sand, sea breezes and palm trees—Wait! Tennessee is landlocked and we are between two mountain ranges and it snowed last night! Ok so I will have another sip of this wonderful clear liquid they illegally make here in the hills (why does it come in Mason jars?) that warms your toes and melts your socks. Now on to the serious stuff.

## Winter Killed Alfalfa: An Alternative Rotation Option

In 2020 I discussed an experiment we conducted for winter-killed alfalfa. The original concept was as soon as you determined the stand was dead or nearly dead you could no-till red clover or red clover and oats to re-establish a forage legume for the next three years. Alfalfa allelopathy had no effect on either crop.

Another alternative was to no-till just oats and harvest at boot stage in early June. Then come back and no-till bmr sorghum or sorghum-Sudan for a summer energy crop. It is harvested in early September and winter triticale is planted. The winter triticale is harvested for forage and then your alfalfa is no-till planted into the triticale stubble to re-establish the alfalfa forage crop.

We tried the first part of planting oats followed by sorghum. As we reported in the November 2020 newsletter, and you can see in the picture above, it was a spectacular failure. The sorghum did not grow if at all. We speculated that the oats had an allelopathic effect on the sorghum. We strongly suggested not to try this practice. A farmer subsequently told me they had the same failure.

To determine if this was a fluke of weather or a real issue we repeated the study in 2021. We added another variable to the test. After harvesting the oats, for part of the oat plot, we lightly tilled (1-2 inch deep) with a disk to break up and incorporated the top inch or

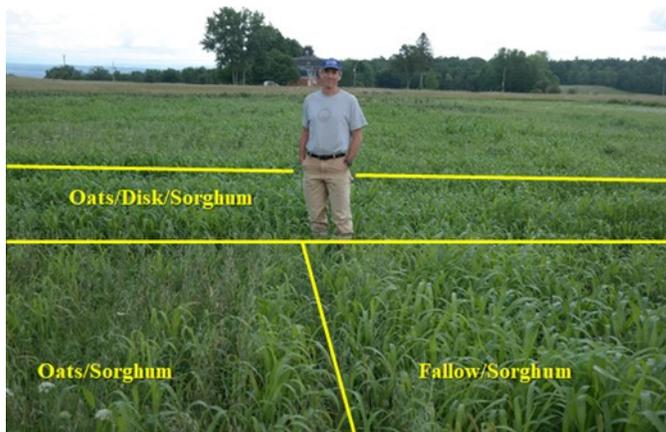


Sorghum-Sudan was planted from bottom left to top right. The bare plots were where we no-tilled sorghum-Sudan into forage harvested oat stubble. Allelopathy from oats killed the sorghum.

two of soil. We then planted the sorghum Sudan. The results can be seen in the picture on the right. The fallow ground in the right bottom of the picture grew fine. The oat stubble no-tilled to sorghum in the bottom left did not grow at all. What you are seeing is some oat tillers that regrew. The lightly tilled ground across in the back of the picture where the farm manager is standing, whether in fallow or oat stubble, grew very well with no issues from the oat allelopathy.

This solves two problems in one pass with the disk. First and most important, it breaks the allelopathy to allow the sorghum to grow. Second, it is a perfect time to add manure to meet the NPK needs without purchasing more expensive fertilizer. Spreading manure and immediately incorporating will more than **triple** the amount of **nitrogen your crop can get from the manure**. It does this without adding excessive phosphorous. Thus, you can grow the crop on just manure which is critical in this time of high fertilizer prices. It also allows you to empty the manure storage in early June (New York climate region) so you are not pressured to put manure on hay ground in the middle of the growing season.

Sorghum is the perfect setup to be followed by no-till winter triticale for forage. Both will regrow in the fall until the first frost kills the sorghum. The triticale continues to grow and is protected from harsh winter by the dead sorghum stubble which gets flattened by the snow. The next spring you harvest 2-4 tons of dry matter of very high-quality forage (better than BMR) as the first forage cut. As our research in [January 2014](#) newsletter shows, it leaves the field in perfect condition to no-till seed alfalfa in early June after you have finished harvesting your haylage. We have consistently gotten much better seedlings planting them at this date and taking advantage of the stubble to keep the small seedlings growing optimally.



Sorghum-Sudan planted from bottom of picture to top. The bottom left is no-till sorghum sp. into oat stubble. Nearly all was oat tillers regrowing. The bottom right is the sorghum no-tilled into bare fallow soil. The top strip from left to right is oat stubble that was lightly disked and then planted to the sorghum sp. It grew the best of all.



Top: triticale no-tilled into harvested sorghum-Sudan. Bottom: After frost the triticale keeps growing, the sorghum has died and dissipates by spring protecting the triticale. (photos P. Cerosaletti)



Sincerely,

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to Better  
Agriculture**

