

**Corn Stover as an Emergency Feed Source and the Potential for a  
Supplemental PAN Allowance For Small Grain Sown After Stover Removal  
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**2007 Drought Emergency**

As a result of prolonged drought conditions across much of North Carolina, at least eighty counties face a critical shortage of hay and winter forage. This picture is the same for all our neighboring states and most of the southeastern United States. North Carolina is currently under a Drought Emergency declared by Governor Mike Easley.

**Corn Stover As a Feed Resource**

One resource that may help us manage through this crisis is the abundance of corn stover, resulting from the increase in corn acres planted in 2007. Stover consists of the stalk, leaf, husk, and cob remaining in the field following the harvest of corn for grain. Stover may also contain some summer grasses and other weeds. Although low quality forage, the use of corn stover as stored feed will be a statewide necessity this year.

As an agronomic consideration, removing this material may have some cost to a subsequent crop in terms of soil fertility. This cost should be least on lands under animal waste nutrient management plans, where nutrients sufficient for crop production are normally provided through the planned application of manure. On such land, the removal of a modest amount of phosphorus may be a positive environmental benefit with little impact on the productivity of phosphorus-rich soils. However, the loss of nitrogen and potassium removed through the stover may affect small grains following the corn crop in rotation.

**Supplemental PAN Allowance for Small Grains**

Due to the potential soil fertility impact of stover removal, the SB 1217 Interagency Group recognizes the need to offset nutrients to the subsequent winter small grain crop. This offset must be agronomically defensible and in accordance with the guidance provided through the 1217 Interagency Group's Eighth Guidance Document dated April 20, 2007. The document can be downloaded from [http://www.enr.state.nc.us/DSWC/pages/guidance\\_docs.html](http://www.enr.state.nc.us/DSWC/pages/guidance_docs.html).

Consistent with the aforementioned requirements, the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) offers the following nutrient offset guidance.

The quantity of stover removed from fields is determined by counting bales and identifying by size, then using the following standardized weights:

Round bales 6 ft. diameter by 5 ft. width = 1000 lbs. dry wt.

Round bales 5 ft. diameter by 4 ft. width = 700 lbs. dry wt.

As more bale weight data becomes available, these estimated weights may be subject to modification.

The bale count and size must be recorded and verified on the DWQ approved STOVER-1 form and kept in the farm records. The form must be signed by both the producer and one of the following individuals: a Cooperative Extension agent with crop or livestock responsibility, a NCDA&CS Regional Agronomist, a NRCS District Conservationist or technician, a Soil and Water Conservation District technician, or any designated technical specialist. Producers should promptly complete the STOVER-1 form to properly document the number of harvested bales and to allow for their speedy removal from the fields.

Growers who have completed form STOVER-1 can then request the additional PAN allowance. It is handled as a conditional amendment to the waste plan, and requires the recommendation of a NCDACS Regional Agronomist, Certified Crop Adviser, or Professional Crop Consultant, in accordance with the 1217 Eighth Guidance Document, section 1.20. Copies of the conditional amendment must then be distributed as prescribed in section 1.6 of the Eighth Guidance Document.

### **Calculating the PAN Allowance**

The offset provision assumes N content of 1% in stover, and that 50% of that N would be available to the following small grain crop grown in rotation. The per-acre pounds of additional PAN allowed, therefore, would equal to the estimated pounds of stover removed per acre multiplied by 0.005.

Example: If a producer harvests 5 bales of stover per acre, 6' x 5' in size, with a designated dry weight of 1000 lb each, then the calculation is  $(5 \times 1000) \times .005 = 25$  lb/ac PAN. Therefore, the recommendation is that up to 25 lb/ac additional PAN may be applied to the small grain crop. This should be calculated for each field in the WUP as nearly as is practical (allow for estimates when bales are split between fields).

The small grain crop must be established and managed in a timely manner using best agronomic practices. The crop must be harvested for grain or utilized as forage; small grains sown as cover crops are excluded from receiving this allowance and must follow guidance provided in section 1.25 of the Eighth Guidance Document. The supplemental PAN allowance for small grains that will be grazed as winter pasture must be reduced by 25% in accordance with the Eighth Guidance Document, section 1.21 and appendix 1.21A.

### **Harvesting Stover**

For stover harvested by methods other than baling, producers should work closely with their Regional Agronomist to estimate yield prior to harvest. *Stover bales must be removed from field and properly managed and utilized to maintain quality in accordance with the farm's NPDES or State General Nondischarge Permit.* As with any hay, stover bales must be protected from rainfall to remain in compliance. Stover bales will have considerably less weather resistance than hay bales, and when wet, will degrade and become heavy and unmanageable very quickly. Use of net-wrap balers or very close string spacing for twine-tie balers is advised.

### **Marketing Baled Stover**

Stover or other surplus forage can be listed with the NCDACS Hay Alert by calling 1-866-506-6222 weekdays from 8 a.m. to 8 p.m., or listed on the Department's website [www.ncagr.com/HayAlert/](http://www.ncagr.com/HayAlert/).

### **Nitrate Risk**

As with any fertilized grass forage produced under drought stress, cornstalks can accumulate potentially dangerous levels of nitrate. It is advisable to test all lots of stover for nitrate before feeding to livestock. Testing is provided, free-of-charge, by the Food and Drug Division of NCDACS. Additional information is available at (919) 733-7366. For assistance sampling bales or fields prior to baling, producers should consult their county Cooperative Extension livestock agent, and obtain Extension Publication AG-606 *Managing Nitrate in Beef Cattle*. [http://www.cals.ncsu.edu/an\\_sci/extension/animal/nutr/nitrate%20management%20in%20beef.pdf](http://www.cals.ncsu.edu/an_sci/extension/animal/nutr/nitrate%20management%20in%20beef.pdf)