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**MANAGEMENT OF COLUMBIA LANCE NEMATODE ON COTTON WITH
ANIMAL MANURE AND WINTER COVER CROPS
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Cultural practices often are neglected as an option for nematode management in cotton. Use of animal wastes, other organic amendments or green manure crops, such as winter rye crop, have promise for controlling many nematodes. North Carolina is a leading state in poultry production, including broiler chickens and turkeys. Poultry waste generally is high in nitrogen and may supply much of this nutrient to cotton. In addition, chicken litter may also have nematicidal properties.

Field experiments were initiated to evaluate the influence of rates of chicken litter, dates of application and (or) a winter rye cover crop on Columbia lance nematode and cotton yield. Fertility levels for all plots were adjusted to levels recommended by a soil test.

A rye cover crop tended to suppress numbers of Columbia lance nematode, but also had a negative impact on cotton yield at a site in Robeson County, NC. There was a negative correlation ($P=0.05$) between seed cotton yield and the amount of rye incorporated into the soil. However, high rates of chicken litter increased ($P=0.10$) cotton yield in the presence of Columbia lance nematode and resulted in low numbers of this nematode in September. The increased cotton yield in response to chicken litter application can be attributed to nematode control, since it is unlikely that fall-litter applications affected soil fertility during the growing season.

Seed-cotton yield, in a Scotland county field infested with Columbia lance nematode, was enhanced by high rates of chicken litter. Early application (December) tended to improve nematode control and enhance yield more than later application (April). Numbers of root-knot nematode were lowest in plots receiving chicken litter, regardless of the date of application. Enhanced nematode control and improved cotton yield with early applications of poultry litter, suggest that nematode suppression via this soil amendment is a result of biological processes.

Applications of 6 to 9 tons of poultry litter per acre increased seed cotton yield by as much as 300 lb/acre while reducing population densities of nematodes damaging to cotton. A rye cover crop was somewhat effective in suppressing mid-season numbers of Columbia lance nematode. Addition of poultry litter to fields infested with high populations Columbia lance nematode can alleviate much of the cotton yield suppression caused by these pathogens.