

Manure and Compost

In the last five years, swine hoophouses have sprung up all over the state. Those deep-bedded systems use a tremendous amount of crop residue. When the hoophouse is cleaned out, the mixture of bedding and manure contains a great deal of carbon compared to nitrogen. If the material is applied directly to the field, that carbon can temporarily tie up nitrogen, competing with crops for that nutrient. Composting reduces the carbon-to-nitrogen ratio, but composting is time consuming. What is the most practical means of handling the material coming out of the hoophouses?

In the foreground, a thermometer probe in a composting windrow of hoophouse manure and bedding. In the background, Wayne and Ruth Fredericks' field day.



PFI is participating in a study to find answers. ISU scientists Cindy Cambardella, Matt Liebman, and Tom Richard have a grant from the Leopold Center, and their research includes on-farm collaboration. Six PFI cooperators took part in the study in 2000 ([Tables 2 and 3](#)). **Vic and Cindy Madsen**, Audubon, saw no yield benefit from applying composted hoop manure to soybeans. **Dave and Becky Struthers**, Collins, spring-applied hoophouse manure/bedding and produced a significant yield increase in corn. Dave noticed some unevenness in the stand with manure, but it didn't keep the crop from enjoying a "strong benefit." **Colin and Carla Wilson** and **Dan and Lorna Wilson**, Paullina, achieved a significant corn yield increase by applying composted hoophouse manure. Both Struthers and Wilson applied additional N to the crop that should have satisfied most of its nitrogen requirement.

Tom and Irene Frantzen, Alta Vista, compared a fall and a spring application of composted hoophouse manure ([Table 3](#)). Both treatments yielded significantly better than the control treatment, which received no compost or fertilizer. **Wayne and Ruth Fredericks**, Osage, fall-applied fresh and composted hoophouse manure. Both those treatments and a check treatment also received 135+17+150 lbs per acre of purchased fertilizer nutrients the following spring. They saw no difference in corn yields among these three treatments. **Paul and Karen Mugge**, Sutherland, carried out the same trial, and they also saw no yield differences. Paul did observe that the stalk quality appeared better in the control treatment. As this study continues, the ISU researchers intend to combine the on-farm data with results from a university experiment farm in order to determine the best ways to use hoophouse manure. They will also work with cooperators to develop a more precise picture of handling and composting labor requirements, so in future PFI reports the manure and compost will show different costs.