

WHERE DOES TURKEY LITTER FIT WITH SUGAR BEET PRODUCTION?

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Turkey litter is a resource available to a large number of sugar beet growers in Minnesota. Earlier research has indicated that its use was positive for root yield. There are concerns about the late season mineralization of N from the litter and the effect the N will have on root quality. The objective of this study is to determine when in a three year rotation should turkey litter be applied and what the nitrogen fertilizer equivalent of the turkey litter applied two and three years in advance of sugar beet production. To achieve the objectives a study was conducted at three locations for three years at each. The rotation was soybean/corn/sugar beet. The treatments were no N for the whole rotation, 6.7 and 13.4 Mg per ha of turkey litter applied 3 and 2 years before sugar beet production. Besides the 6.7 and 13.4 Mg of turkey litter per ha before corn production, 134 kg N per ha was applied. Before the sugar beet crop in the rotation, 6.7 and 13.4 Mg of turkey litter per ha was applied along with 6 rates of N fertilizer. These treatments were replicated 5 times. At the first two sites, the turkey litter increased soybean yield at one location. This increase was small. Turkey litter and 134 kg N per ha increased corn yields at both locations. At one location, sugar beet quality was not affected by the use of turkey litter. Root yield and sucrose per acre were increased with turkey litter and N fertilizer application.