

# **Evaluation of Nonnodulating Soybean Lines as Receiver Crops for N from Swine Lagoon Effluent. (A05-israel143104-Oral)**

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## **Abstract:**

The swine industry needs more effective N receiver crops for management of swine-lagoon-effluent spray fields. The capacity of experimental nonnodulating soybean lines (N97-2996, N99-3341, N99-3342) to accumulate N from applied lagoon effluent in seed was evaluated in comparison to their nonnodulating parent (D68-009) at two locations in the Coastal Plain of North Carolina. Nonnodulating lines N99-3341 and N99-3342 were derived by crossing D68-0099 with Cook, a high-yielding, nodulating line, and the high seed protein line, NC 106, was the nodulating parent of line N97-2996. At N levels of 210 to 250 kg plant available N/ha as lagoon effluent, the nonnodulating experimental line (N99-3341) exhibited significantly greater ( $P < 0.05$ ) seed yield and seed N accumulation capacity than its nonnodulating parent and the N97-2996 and N99-3342 experimental lines. Seed dry weight yields of N99-3341 averaged 3150 kg/ha and its seed N accumulation averaged 216 kg/ha for the two locations. These values represent 13% greater seed yields and 17% greater seed N accumulation for N99-3341 in comparison to the nonnodulating parent, D68-0099. Since all 216 kg N/ha accumulated in seed is derived either from applied effluent or residual soil N, line N99-3341 represents an environmentally sound tool for management of lagoon effluent spray fields.

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