189 Modeling manure OM and N composition of dairy cows fed grass silage based diets. J. Dijkstra*[1], A. Bannink[2], E. A. Lantinga[3], and J. W. Reijs[4], [1]*Animal Nutrition Group, Wageningen University, Wageningen, The Netherlands*, [2]*Animal Sciences Group, Wageningen UR, Lelystad, The Netherlands*, [3]*Biological Farming Systems Group, Wageningen University, Wageningen, The Netherlands*, [4]*Agricultural Economics Research Institute, Wageningen UR, Wageningen, The Netherlands*.

Nitrogen pollution in dairy farming may be lowered by reducing N output in excreta and by optimizing manure C:N ratio and N composition. An extant mechanistic model of digestion and fermentation processes was modified to simulate the fecal and urinary composition of dairy cattle fed grass silage (*Lolium perenne* L.) based diets. Total N excretion was partitioned into three fractions representing availability of N to plants, viz. immediately available N (N_M; mainly urea), easily decomposable N (N_E; urinary non-urea N, endogenous N and microbial N) and resistant N (N_R; N in undigested feed). Four different types of grass silages were explored at high (HF) and low (LF) N fertilization level and early (EC) or late (LC) cutting. For each grass silage, 10 supplementation strategies that differed in level and type of supplement were studied. Simulated urinary N excretion showed large variation between silages, but variation in simulated fecal N excretion was small. Urinary N excretion and the N_M fraction decreased considerably with lowered fertilization level and, to a smaller extent, with delayed cutting. The simulated N_E and N_R excretion (in g/d) were relatively constant though. A lower fertilization level or delayed cutting increased simulated manure C:N ratio