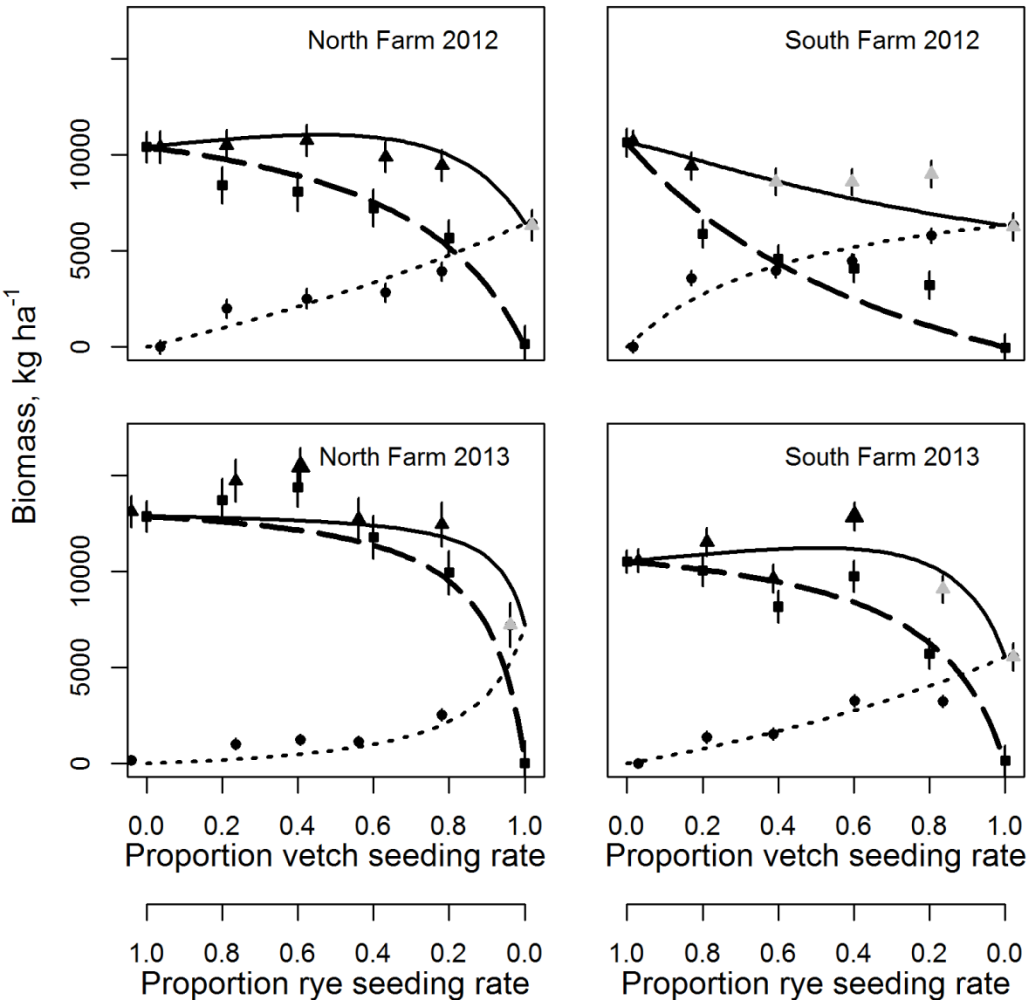

Figure 1 Cover crop aboveground biomass as a function of hairy vetch/cereal rye sown proportions. Lines represent plant competition model predictions. Circles and dotted lines represent hairy vetch biomass, squares and dashed lines represent cereal rye biomass, and triangles and solid lines represent total biomass. Within each site-year, total biomass estimates of mixtures and monoculture hairy vetch were compared to biomass of monoculture cereal rye: grey triangles represent biomass values significantly lower than the monoculture cereal rye biomass, black triangles represent biomass values equal to monoculture cereal rye biomass, and large black triangles represent biomass values greater than monoculture cereal rye biomass ($p<0.05$). Error bars are ± one standard error. Noise was added to points and error bars on the x axis to allow better visual interpretation.

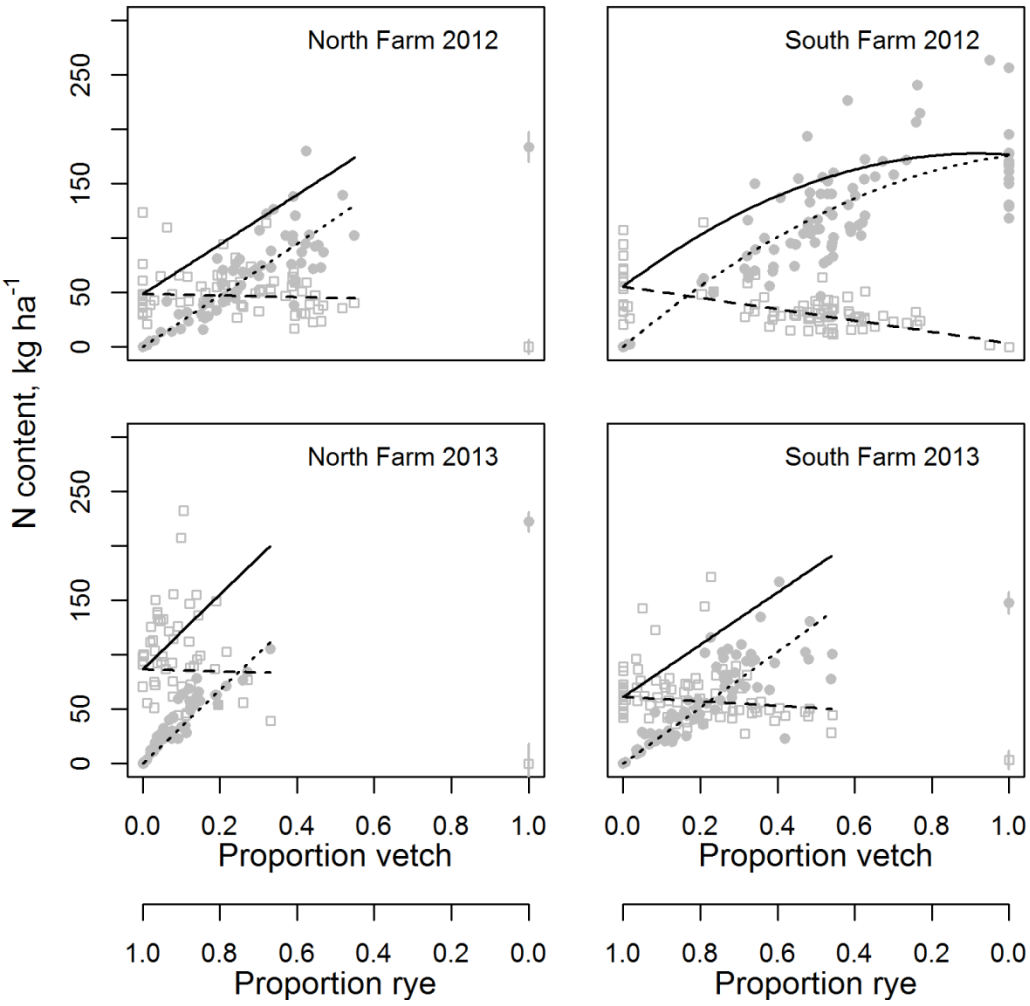

Figure 2 Cover crop aboveground nitrogen (N) content as a function of hairy vetch proportion in biomass. Lines represent linear or quadratic model predictions. Circles and dotted lines represent hairy vetch N content, open squares and dashed lines represent cereal rye N, and the solid line represents the total aboveground N content. Models were fit only over the range of vetch proportions in which N data was collected. The circle at the highest hairy vetch proportion in each panel represents mean hairy vetch N content calculated for the monoculture hairy vetch treatment. Error bars are ± one standard error.

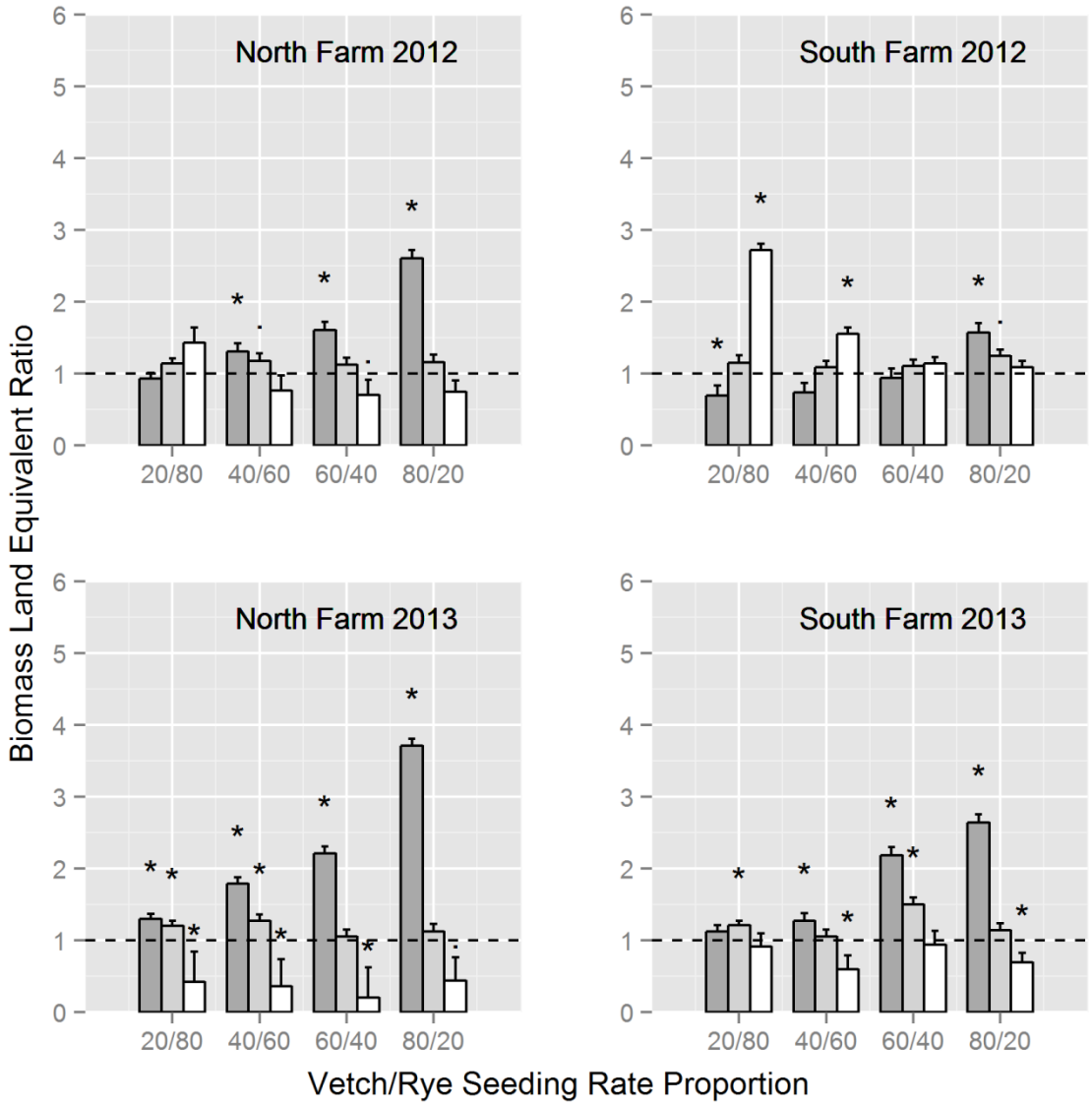

Figure 3 Mean biomass Land Equivalent Ratios (LERs) of hairy vetch/cereal rye mixtures grown at two Beltsville, MD fields harvested in spring 2012 and 2013. Dark grey bars represent the mean LER of cereal rye, light grey bars represent the mean LER of the mixture, and white bars represent mean LER of hairy vetch. Bars with asterisks above them are significantly different than one at $p<0.05$; bars with periods above them are significantly different than one at $0<0.10$. Error bars are + one standard error.

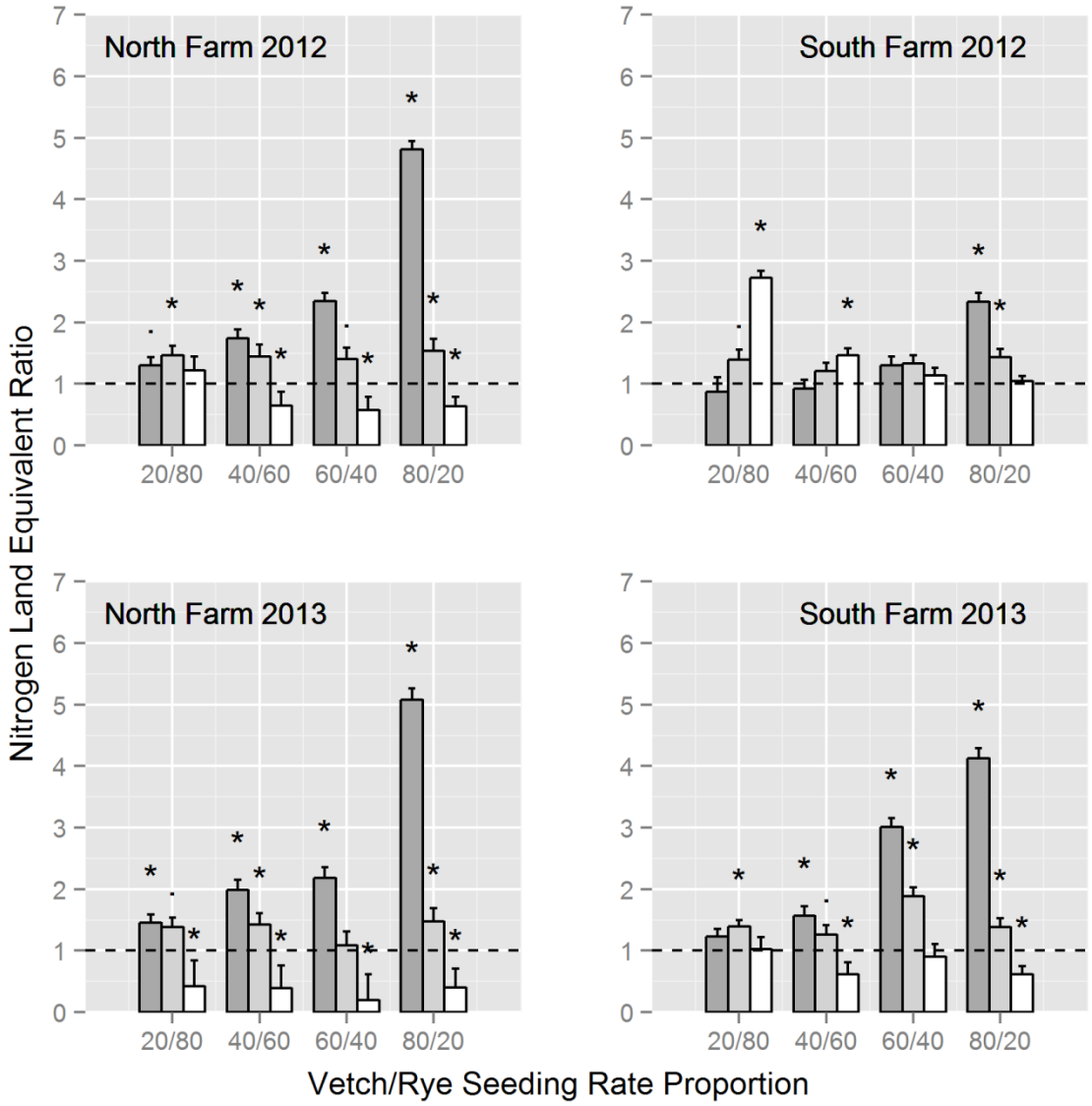

Figure 4 Mean nitrogen (N) Land Equivalent Ratios (LERs) of hairy vetch/cereal rye mixtures grown at two Beltsville, MD fields harvested in spring 2012 and 2013. Dark grey bars represent the mean LER of cereal rye, light grey bars represent the mean LER of the mixture, and white bars represent mean LER of hairy vetch. Bars with asterisks above them are significantly different than one at $p<0.05$; bars with periods above them are significantly different than one at $0<0.10$. Error bars are + one standard error.

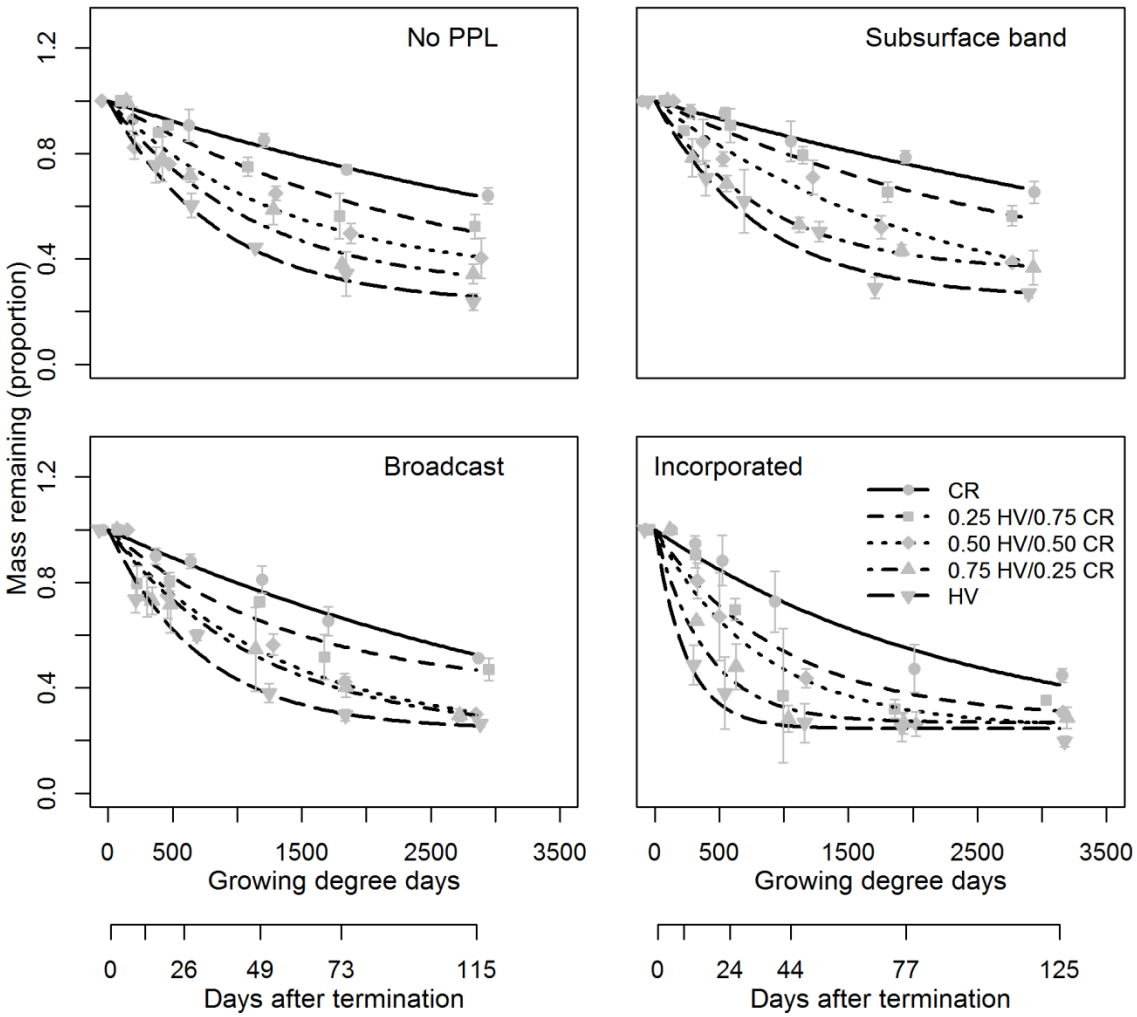

Figure 5 Proportion of mass remaining in litter bags containing a range of hairy vetch (HV)/cereal rye (CR) proportions and subjected to different manure management during the 2012 corn growing season. Each symbol represents the mean of three replicates of a particular cover crop proportion and pelletized poultry litter (PPL) treatment at a given time. Lines represent exponential decay models fit to each cover crop species proportion within each PPL treatment over soil growing degree days (soil gdd, axis labeled "Growing degree days"). Error bars indicate ± one standard deviation. Noise in the x direction was added to aid in visual interpretation of overlapping symbols and error bars.

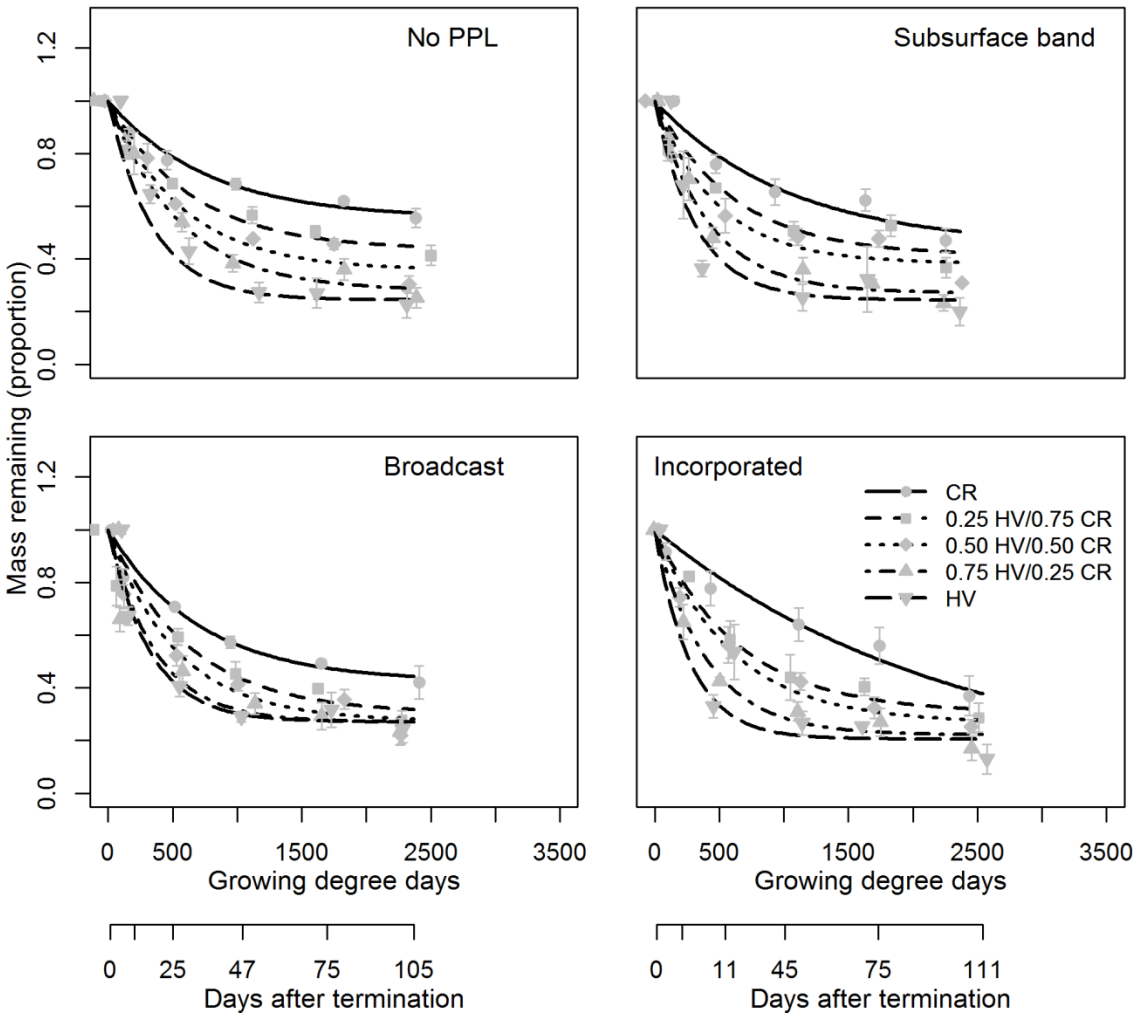

Figure 6 Proportion of mass remaining in litter bags containing a range of hairy vetch (HV)/cereal rye (CR) proportions and subjected to different manure management during the 2013 corn growing season. Each symbol represents the mean of three replicates of a particular cover crop proportion and pelletized poultry litter (PPL) treatment at a given time. Lines represent exponential decay models fit to each cover crop species proportion within each PPL treatment over soil growing degree days (soil gdd, axis labeled "Growing degree days"). Error bars indicate ± one standard deviation. Noise in the x direction was added to aid in visual interpretation of overlapping symbols and error bars.

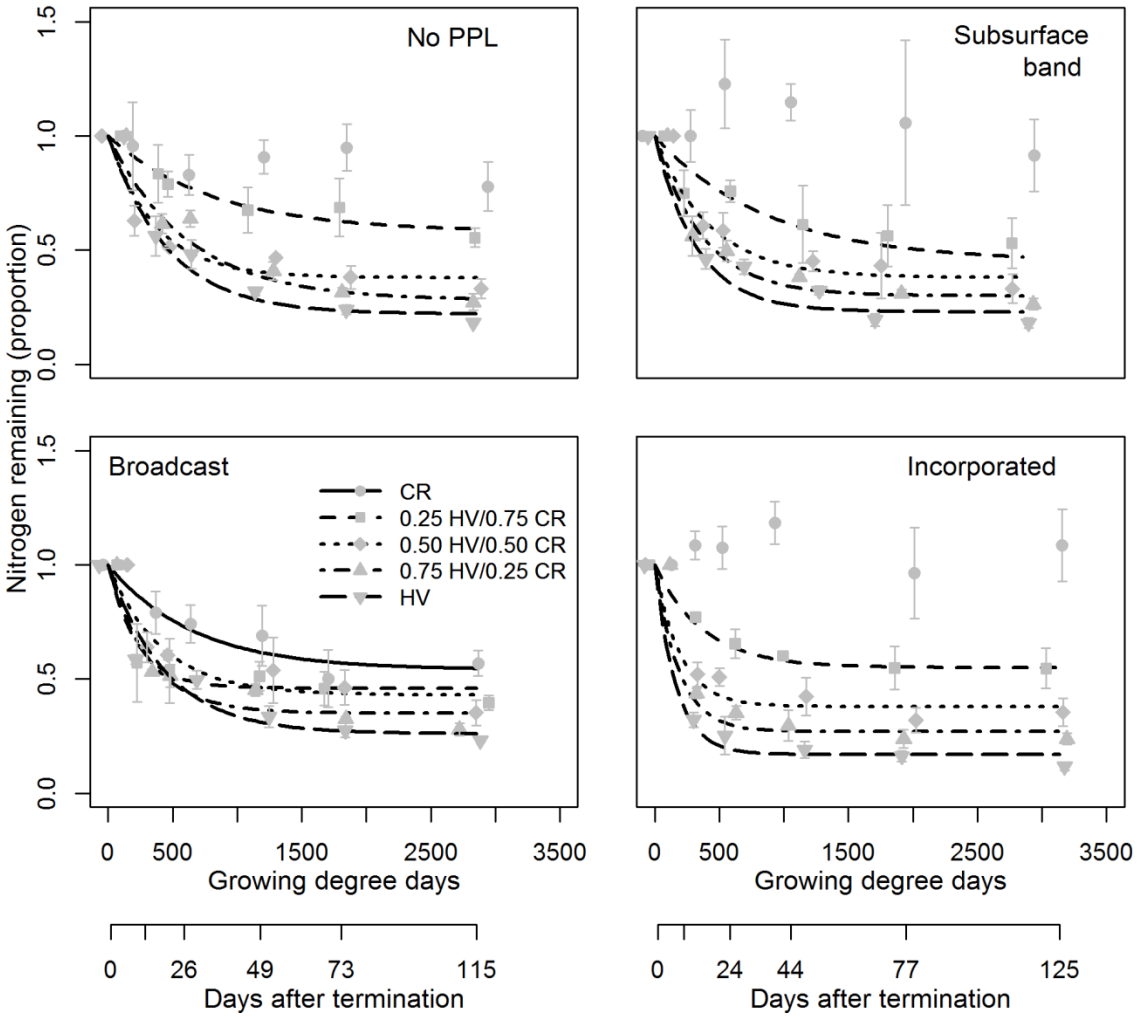

Figure 7 Proportion of nitrogen (N) remaining in litter bags containing a range of hairy vetch (HV)/cereal rye (CR) proportions and subjected to different manure management during the 2012 corn growing season. Each symbol represents the mean of three replicates of a particular cover crop proportion and pelletized poultry litter (PPL) treatment at a given time. Lines represent exponential decay models fit to each cover crop species proportion within each PPL treatment over soil growing degree days (soil gdd, axis labeled "Growing degree days"). Error bars indicate ± one standard deviation. Noise in the x direction was added to aid in visual interpretation of overlapping symbols and error bars.

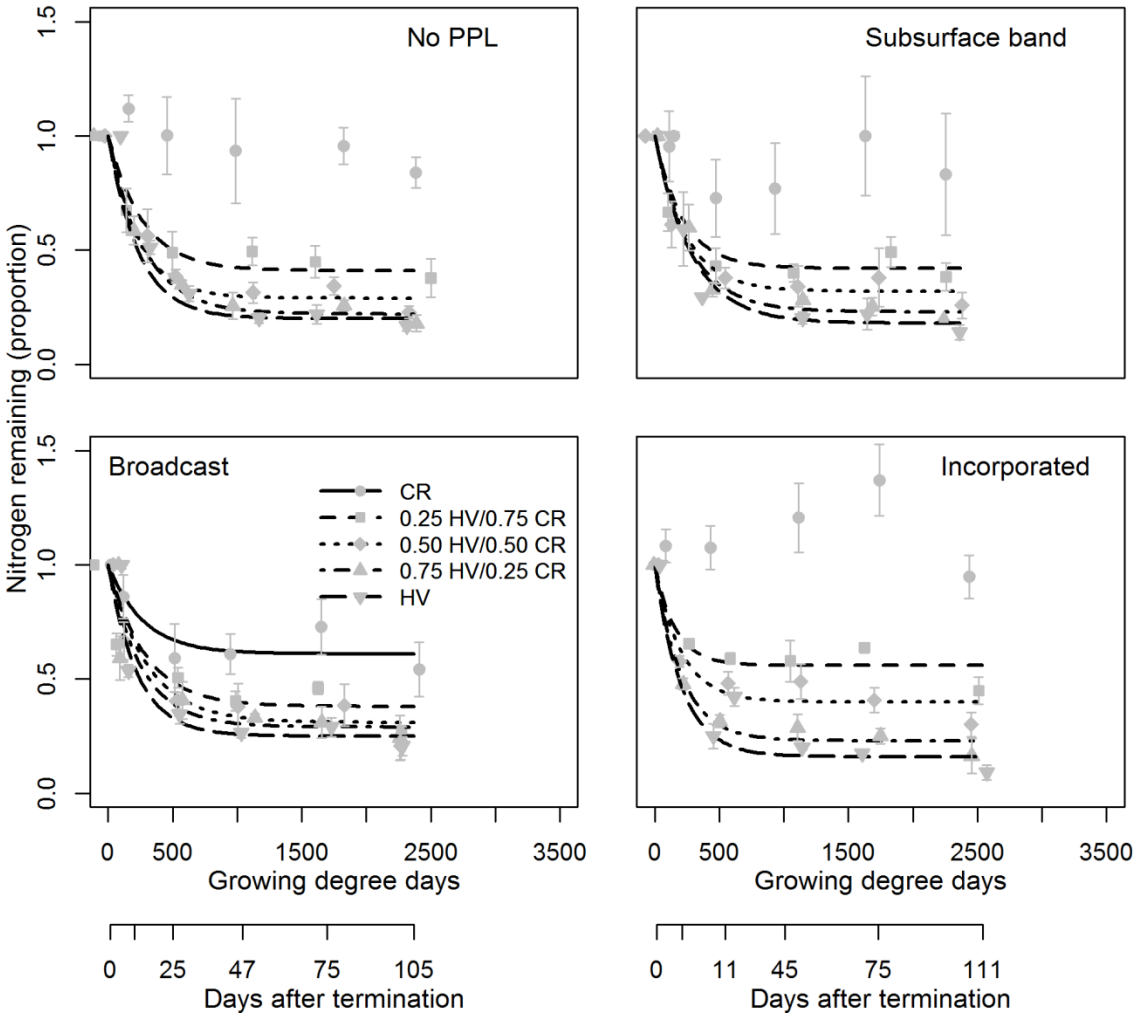

Figure 8 Proportion of nitrogen (N) remaining in litter bags containing a range of hairy vetch (HV)/cereal rye (CR) proportions and subjected to different manure management during the 2013 corn growing season. Each symbol represents the mean of three replicates of a particular cover crop proportion and pelletized poultry litter (PPL) treatment at a given time. Lines represent exponential decay models fit to each cover crop species proportion within each PPL treatment over soil growing degree days (soil gdd, axis labeled "Growing degree days"). Error bars indicate ± one standard deviation. Noise in the x direction was added to aid in visual interpretation of overlapping symbols and error bars.

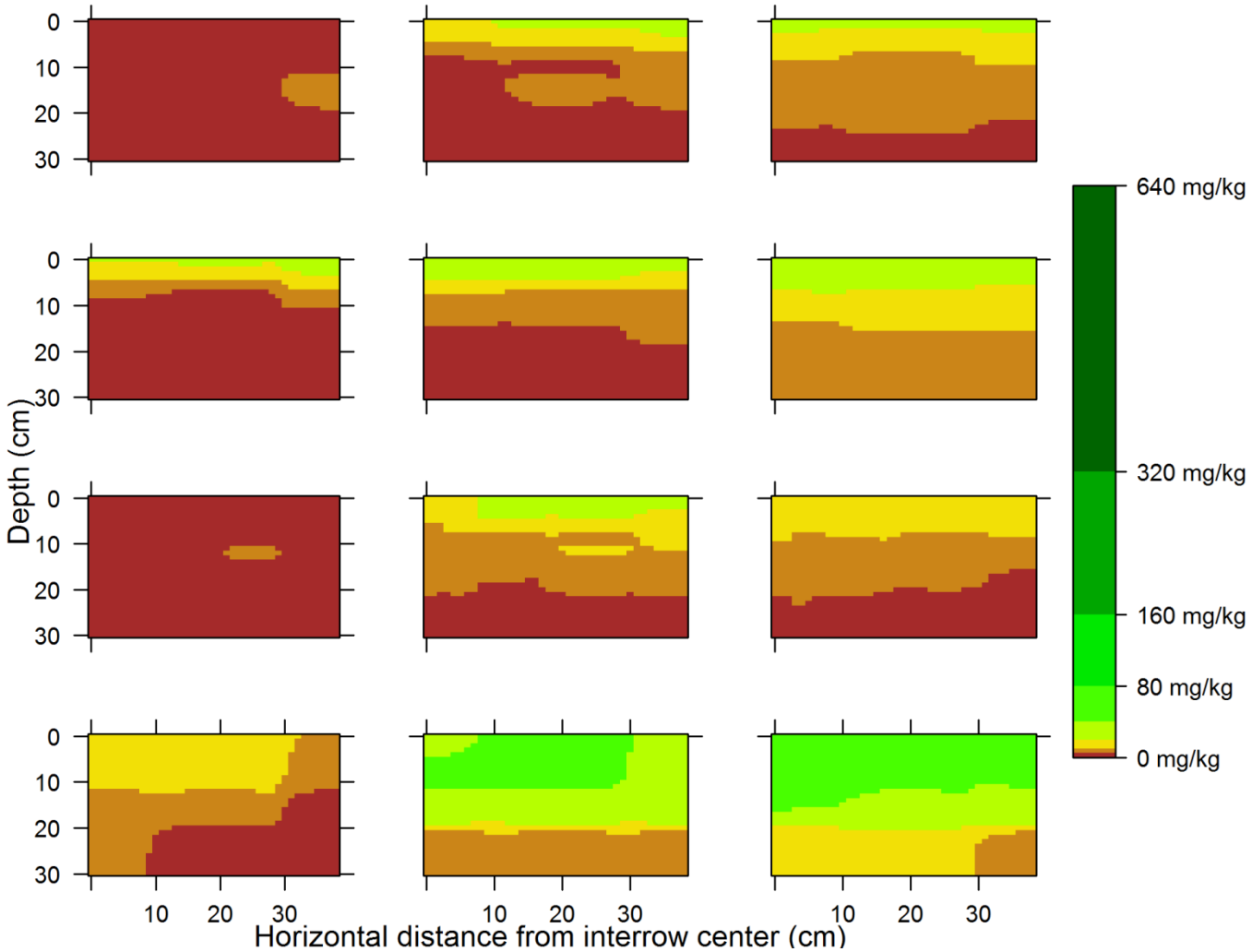

Figure 9 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn emergence in 2012 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

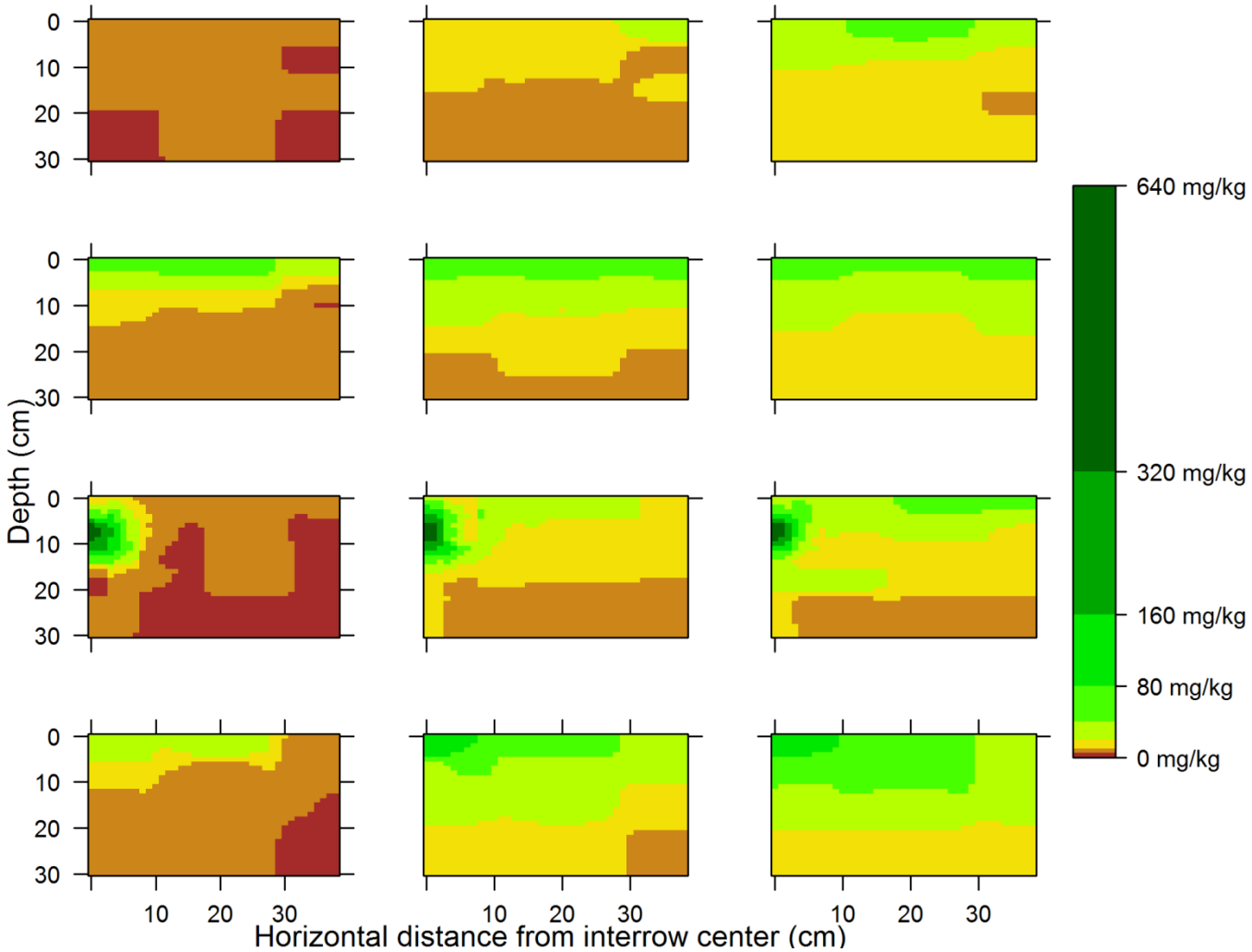

Figure 10 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn fifth-leaf stage in 2012 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

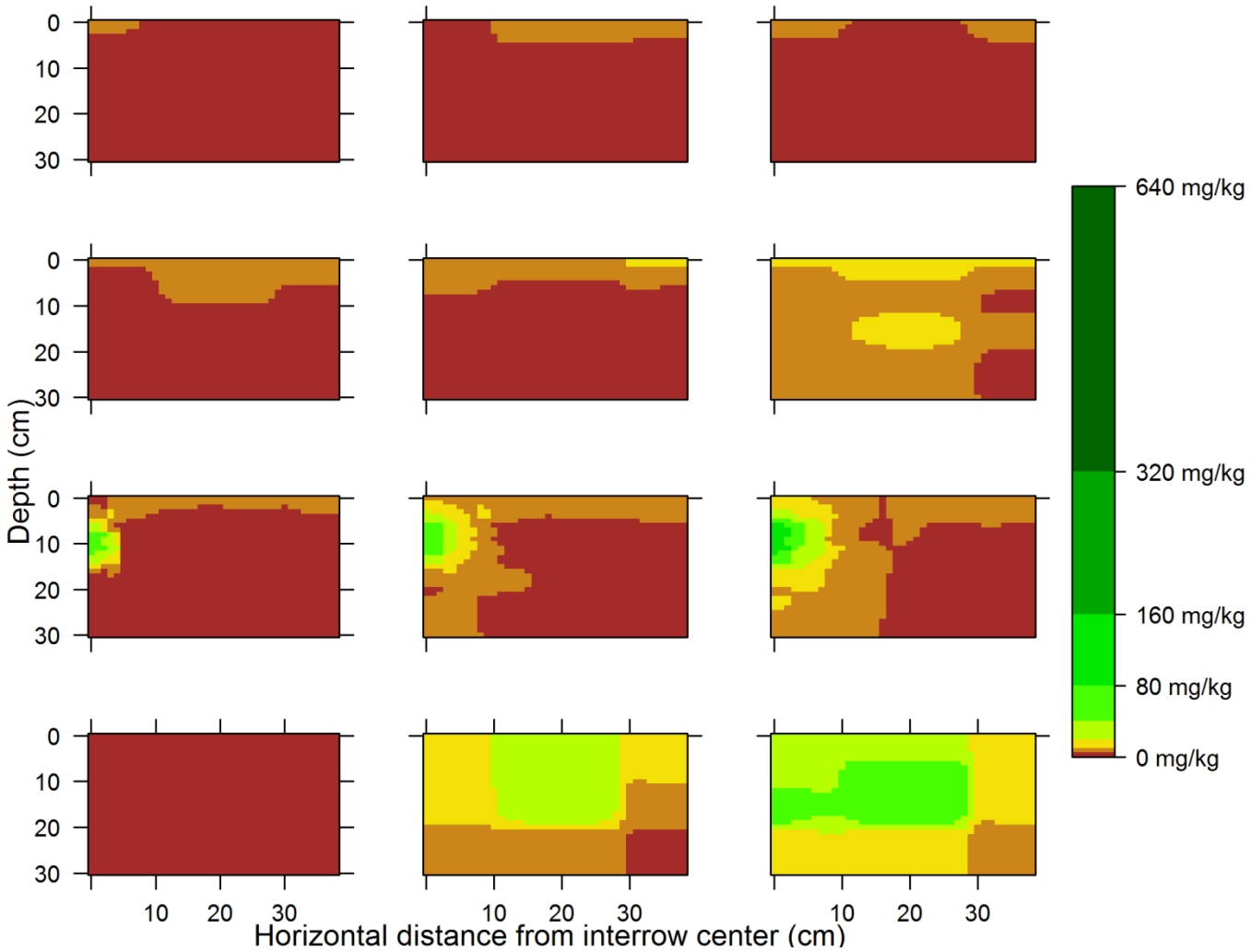

Figure 11 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn silking stage in 2012 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

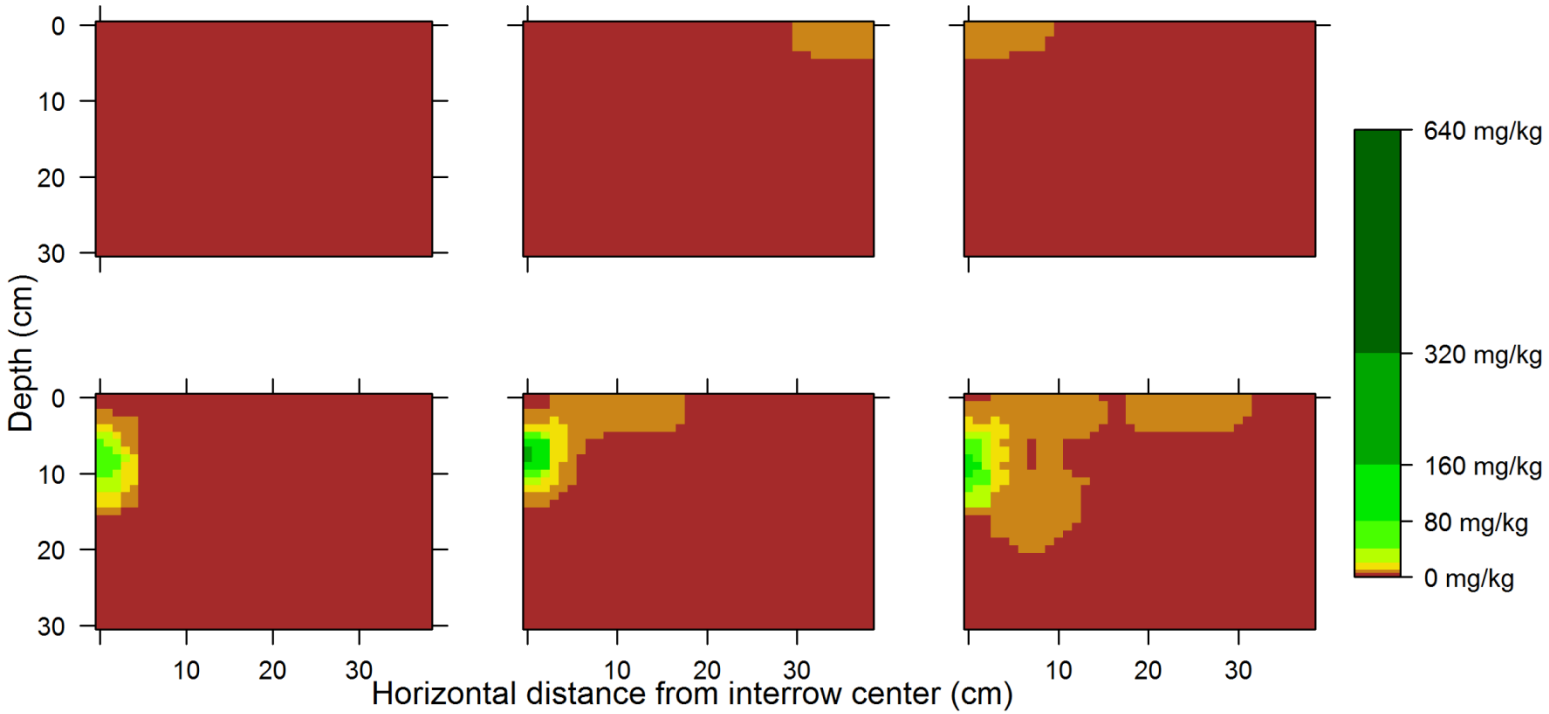

Figure 12 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn milk stage in 2012 for two pelletized poultry litter (PPL) treatments (top: no PPL; bottom: subsurface band) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

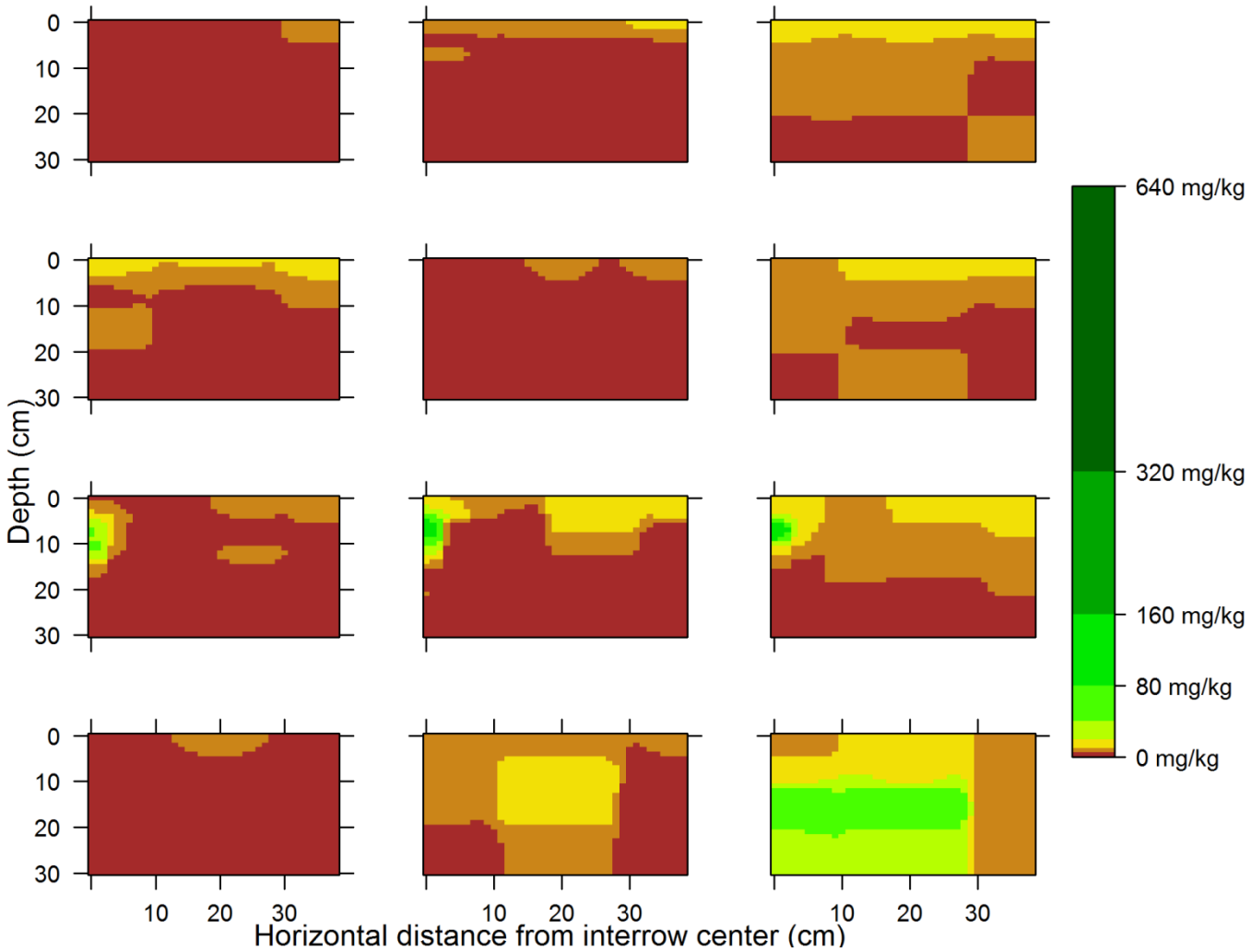

Figure 13 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn maturity in 2012 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

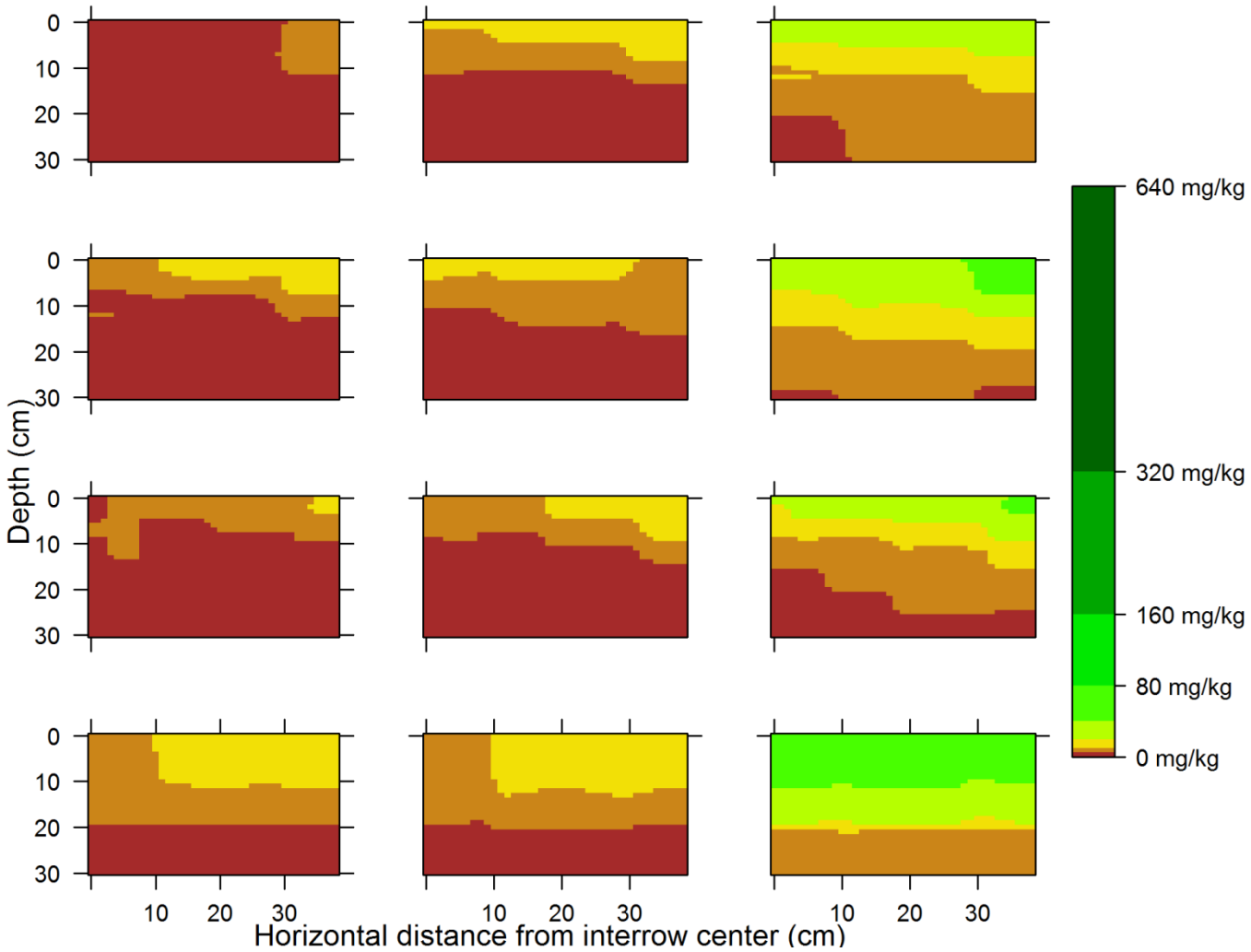

Figure 14 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn emergence in 2013 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

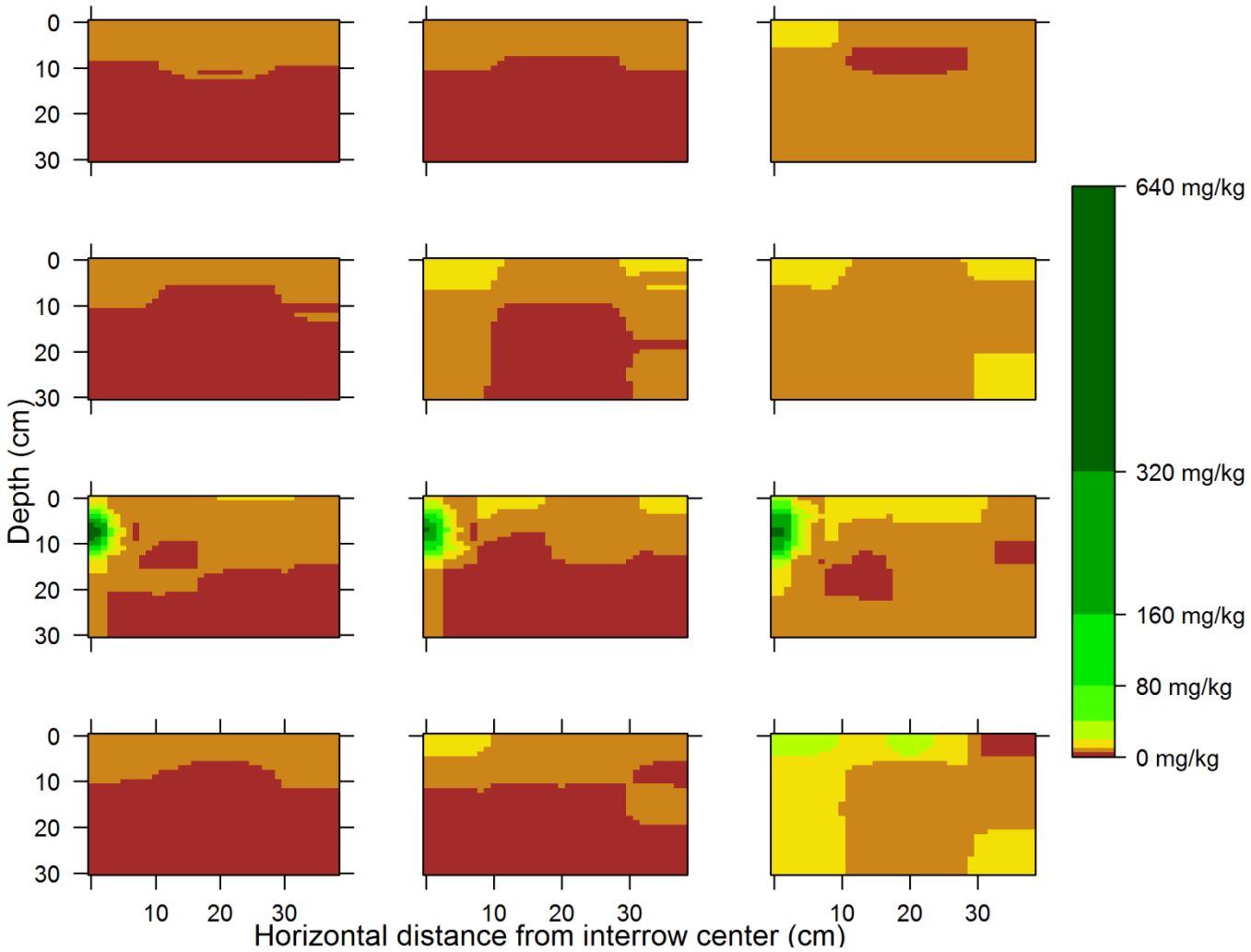

Figure 15 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn fifth-leaf stage in 2013 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

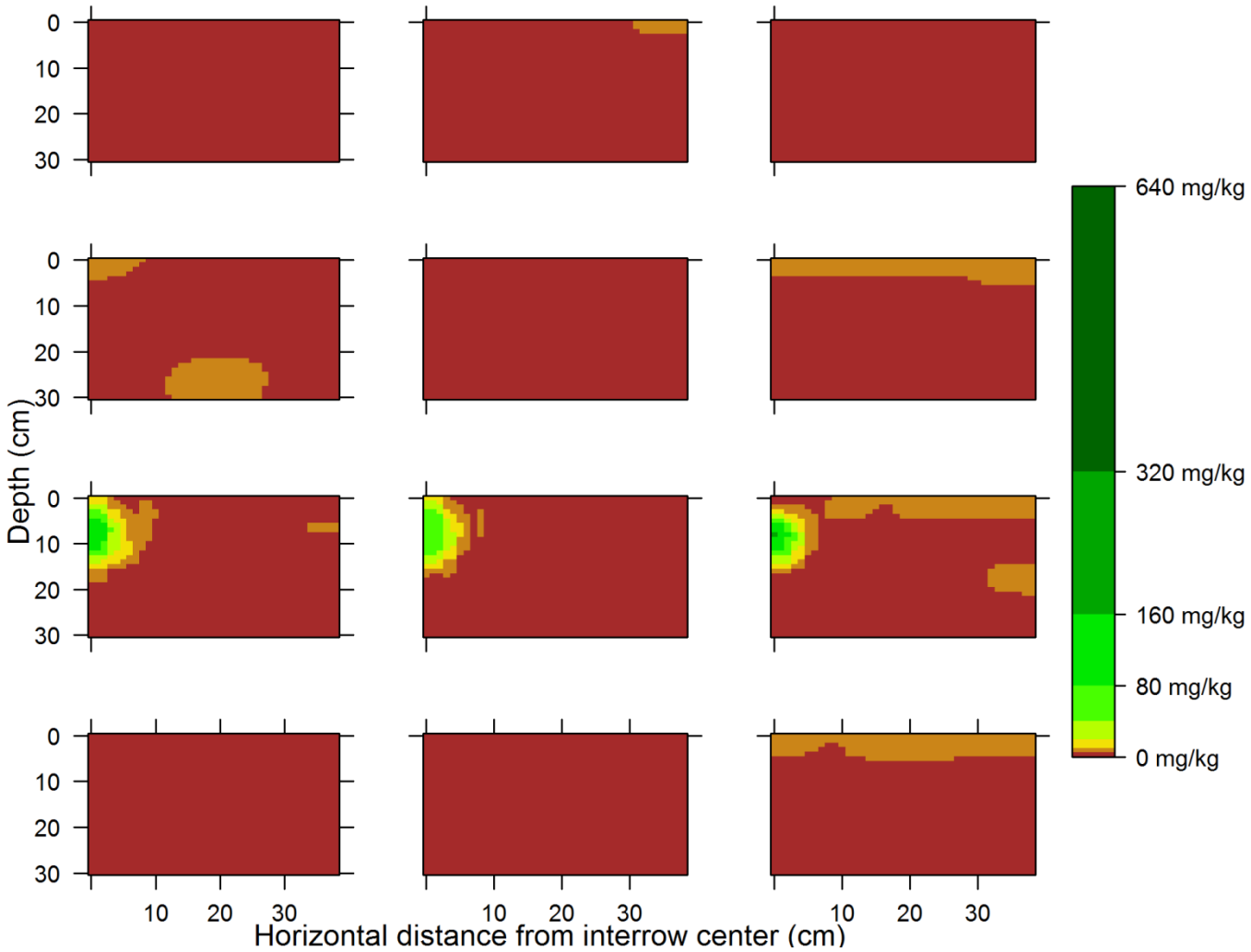

Figure 16 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn silking stage in 2013 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

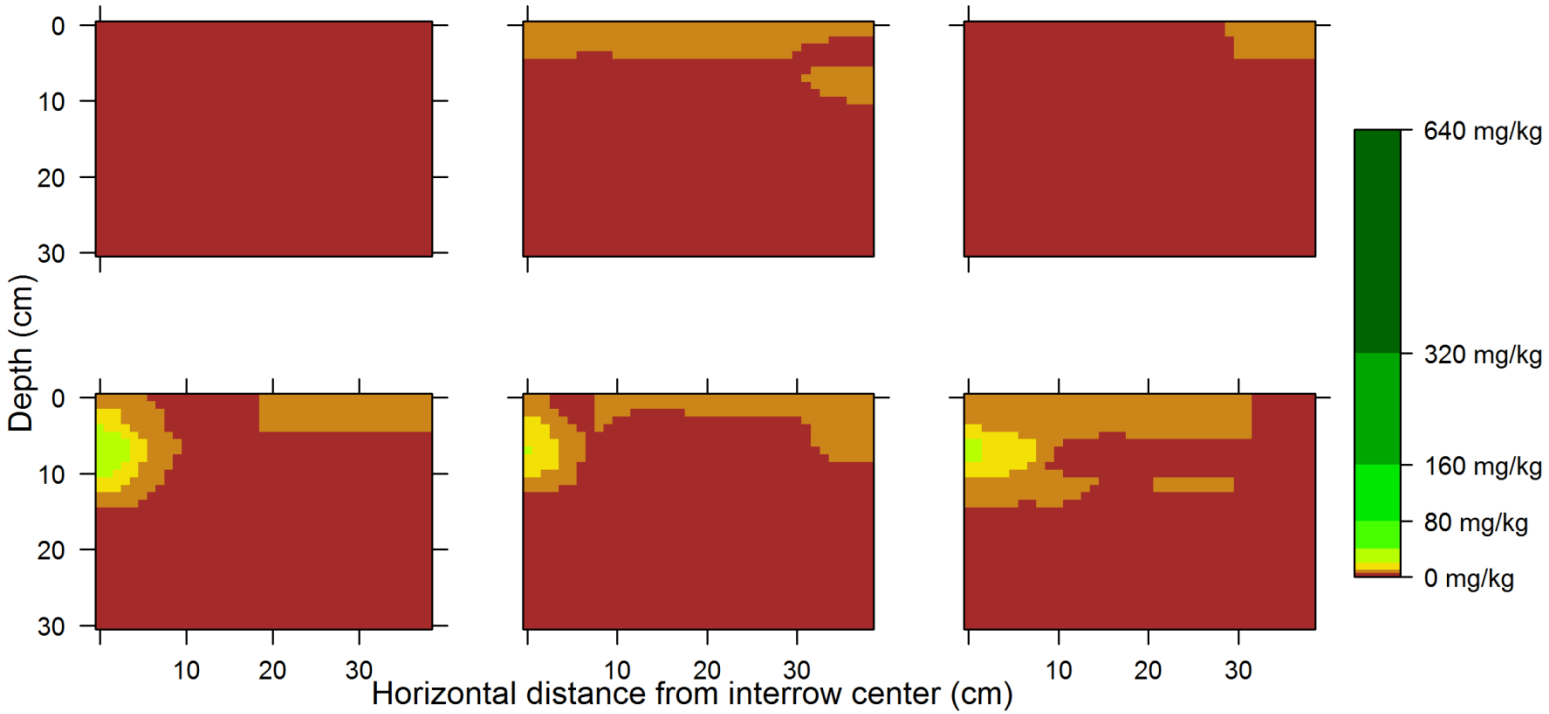

Figure 17 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn milk stage in 2013 for two pelletized poultry litter (PPL) treatments (top: no PPL; bottom: subsurface band) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).

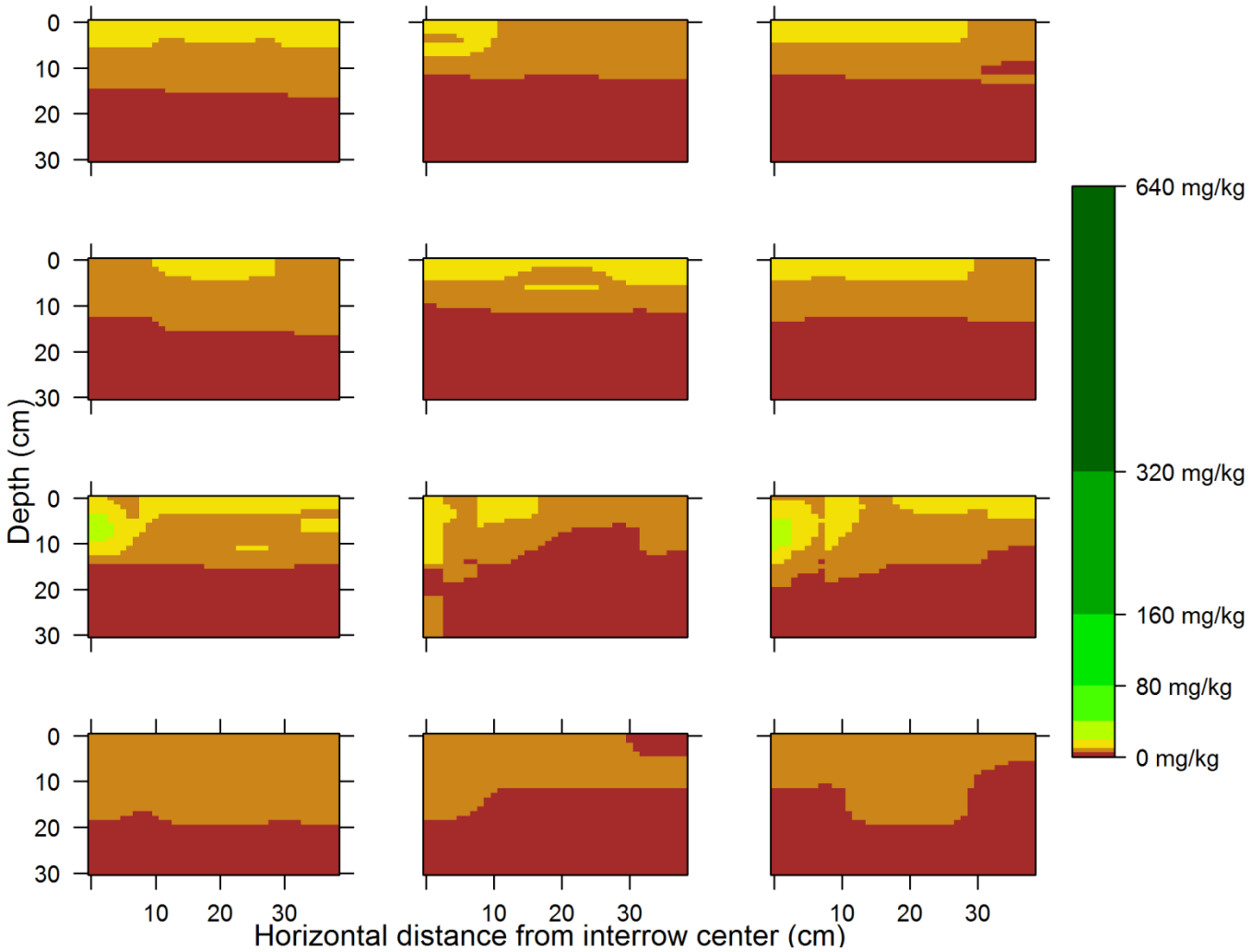

Figure 18 Spatial distribution of soil inorganic nitrogen (IN) concentration at corn maturity in 2013 for four pelletized poultry litter (PPL) treatments (top to bottom: no PPL, broadcast PPL, subsurface band, incorporated PPL) and three cover crop treatments (left: cereal rye; middle: hairy vetch/cereal rye mixture; right: hairy vetch).