Wheat is a suitable crop for application of biosolids in corn–wheat–soybean crop rotations commonly planted throughout the US Mid–Atlantic states due to its crop N needs. Our objectives were (i) to compare the effects of fall biosolids applications and fall–spring urea split applications on winter wheat biomass, grain yield, and soil inorganic N, and (ii) to compare the effects of biosolids type and soil texture on appropriate biosolids application rate and timing for winter wheat. A property that may alter the rates at which the total amount of PAN forms between the two biosolids types is the initial ratio of inorganic/organic N. While nearly all the N in lime–stabilized biosolids is initially found in the organic fraction (Orndorff et al., 2008), as much as 40% of the total N in anaerobically digested biosolids may initially be present as NH$_4$–N (Barbarick et al., 2010). Economic and agronomic value of biosolids use for wheat may be offset by the environmental cost of increased N leaching loss from fall–applied biosolids.