To do:

Describe ordinations

Write out results of biogeochemical ANOVAs (with p-values and Cohen’s D values)

Express stuff (AAs) on MBC basis instead of g-soil basis?

Check directions of AA descriptions. E.g. did one treatment “increase” consumption rate of A, or “decrease” consumption rate of B?

**Site, water regime, and agricultural management treatment had interacting effects on gross amino acid production and consumption rates, net amino acid consumption, and amino acid pool sizes**

**Site effects and interactions of site with management and water treatment**. Across all sites, KBS had higher gross production of glycine, valine, and total amino acids [alanine, proline] than Beltsville, and within KBS, organic soil had a somewhat higher gross production rate of proline than conventional soil, possibly because [mesic KBS soils managed organically had moderately greater proline consumption rates than those managed conventionally]. But Beltsville soil had larger pools of [glycine] and longer residence times for alanine, total amino acids, and [glycine] than KBS soil, and organic Beltsville soils had [longer proline residence time] than organic KBS soil. Wet dry cycles increased net immobilization of threonine in Beltsville soil (compared to mesic Beltsville soil) but not KBS soil. Valine was consumed at a higher rate in KBS mesic soils than any other soil (Kx and Bm significant, Bx marginal). Under mesic conditions, KBS soils had a moderately higher valine consumption rate than Beltsville soils, perhaps because mesic organic KBS soils had much a higher valine consumption rate, and indeed total amino acid consumption rate, than organic mesic soils from Beltsville. Across management practices, exposure to wet-dry cycles caused a small decrease in the valine consumption rate in KBS soils, while in Beltsville soils they moderately increased the net threonine immobilization rate. [Beltsville soils exposed to wet-dry cycles had moderately lower valine consumption rates than mesic soils from KBS.] [Exposure to wet-dry cycles caused conventional KBS soil to have a much larger asparagine consumption rate and much greater net asparagine immobilization rate compared to mesic organic Beltsville soils exposed to wet-dry cycles.]

**Management effects.** Management had no significant main effects, but organic management did tend to [increase asparagine production overall, and proline production] at KBS. Overall, conventional soils tended to have [longer glycine residence times than conventional soils], but at Beltsville, organic soil had [longer proline residence time] than conventional soil.

**Treatment effects.** Soils exposed to wet-dry cycles tended to have [higher glycine but lower rates of valine production and consumption] than mesic soils. Soils exposed to wet-dry cycles had significantly longer valine residence times, but greater consumption and net immobilization of asparagine than mesic soils. At Beltsville, soils exposed to wet-dry cycles had significantly greater net immobilization of threonine.

**Interactions between management and treatment.** Wet-dry cycles slightly lengthened alanine residence time in organic compared to conventional soils. Exposure to wet-dry cycles caused organic soils to moderately decrease the alanine consumption rate, and to accumulate slightly larger leucine and isoleucine pools. [Exposing organic soils to wet-dry cycles mildly lowered the proline consumption rate and slightly lengthened proline and alanine residence times.]

**Site-specific interactions between management and treatment: KBS.** The [proline consumption rate tended to be higher in organic than conventional soils under mesic conditions]. Exposing organic soils from KBS to wet-dry cycles moderately lowered their alanine, valine, and proline consumption rates, and strongly lowered total amino acid consumption rates compared to those of mesic organic soil; likewise, they also had longer residence times for alanine, valine, isoleucine, [proline], and total amino acids; and tended to have larger leucine and isoleucine pools. Exposing conventional soils from KBS to wet-dry cycles greatly increased their asparagine consumption rate, resulting in moderately greater net asparagine immobilization compared to mesic conventional soils from KBS.

**Site-specific interactions between management and treatment: Beltsville.**

[Under mesic conditions, the threonine pool tended to be larger in conventional than organic Beltsville soil.] Organic soils from Beltsville exposed to wet-dry cycles had much higher rates of asparagine consumption than conventional Beltsville soils exposed to wet-dry cycles, and greater net immobilization of asparagine compared to mesic organic soils. Within organic Beltsville soils, exposure to wet-dry cycles greatly increased asparagine consumption rates and therefore increased net asparagine immobilization and the total amino acid consumption rate. [Organic Beltsville soils exposed to wet-dry cycles also tended to have a much lower asparagine consumption rate than mesic conventional soils from Beltsville.] [Exposure to wet-dry cycles tended to increase proline production rate in conventional compared to organic Beltsville soils.]