## Classification of agricultural and environmental outcomes to be included in the systematic map

We will use this provisional classification for coding (via drop-down menus in our data-entry forms). A secondary objective of this map is to test the usability of this classification, and we will discuss the classification itself in a future publication, if it seems useful for future systematic maps. If possible, studies will be classified at one of the levels with bullet points (“n.e.c.” = not elsewhere classified).

1. **Crops**
   1. Crop yield (including cash crops and cover crops)
      * *Crop yield*
        + *Crop biomass (including inedible components; e.g., the stems of some crops)*
        + *Crop propagules (including cuttings and seeds not used for food, feed, fuel, etc.)*
        + *Crop yield (including harvest index; also see "land" for land equivalency)*
      * *Crop yield, n.e.c.*
   2. Crop quality (including cash crops and cover crops)
      * *Crop appearance (including the size and shape of the edible parts)*
      * *Crop cooking quality*
      * *Crop storage quality*
      * *Crop taste (including acidity, texture, etc.)*
      * *Ash content of crops*
      * *Dry matter content of crops (also see "Crop yield" for dry matter yield)*
      * *Fibre content of crops*
      * *Toxins in crops*
        + *Agrochemicals in crops (e.g., pesticide residues)*
        + *Heavy metals in crops (e.g., lead [Pb], mercury [Hg], or zinc [Zn])*
        + *Toxins in crops, n.e.c. (e.g., cyanide)*
      * *Chemical elements in crops*
        + *Carbon (not including soil organic carbon)*
        + *Plant macronutrients*
          - *Nitrogen (N) in plants (including biological nitrogen fixation)*
          - *Phosphorus (P) in plants*
          - *Potassium (K) in plants*
      * *Nutrients in crops*
        + *Calories*
        + *Micronutrients*
          - *Minerals*
          - *Vitamins*
        + *Macronutrients*
          - *Fat*
          - *Protein*
          - *Starch*
          - *Sugar*
      * *Crop quality, n.e.c.*
   3. Crop damage (also see "pathogens, pests, and weeds")
      * *Crop damage or infection by pathogens (e.g., disease severity)*
      * *Crop damage by pests*
      * *Crop damage by weeds*
      * *Crop damage, n.e.c.*
   4. Crop growth and survival
      * *Crop growth*
        + *Plant growth rate (e.g., photosynthetic rate)*
        + *Plant size (e.g., canopy cover, ground cover, leaf area index [LAI], or height)*
      * *Crop survival (e.g., germination rate)*
2. **Soil**
   1. Soil structure and function
      * *Soil aggregation and erosion*
        + *Soil aggregation*
        + *Soil erosion (including soil loss through harvesting)*
      * *Soil compaction, porosity, and water content*
        + *Soil compaction*
          - *Soil bulk density*
          - *Soil porosity/infiltration rates*
        + *Soil water content*
      * *Soil chemistry*
        + *Soil salinity (including sodium [Na])*
        + *Cation exchange capacity (CEC)*
        + *Electrical conductivity (EC)*
        + *Soil pH*
      * *Soil elements*
        + *Soil organic matter (SOM) and soil carbon (C)*
          - *Soil inorganic carbon*
          - *Soil organic carbon (SOC)*
          - *Soil organic matter (SOM)*
          - *Soil total carbon*
        + *Soil micronutrients and secondary nutrients (e.g., calcium [Ca] and magnesium [Mg])*
        + *Soil macronutrients*
          - *Nitrogen (N, including ammonium [NH4+] and nitrate [NO3-] in soils*
          - *Phosphorus (P) in soils*
          - *Potassium (K) in soils*
        + *Soil mineralization (decomposition from organic to inorganic forms)*
        + *Soil nutrient leaching (including nitrate leaching [NO3-])*
      * *Soil respiration (also see "pollutants (including greenhouse gases)")*
      * *Soil temperature*
      * *Soil texture (i.e. sand, silt, and clay content)*
      * *Soil structure and function, n.e.c.*
   2. Soil organisms (also see "biodiversity" and "pathogens, pest, and weeds")
      * *Soil microbes (not including pathogens), n.e.c.*
        + *Bacteria (including nitrogen-fixing bacteria)*
        + *Fungi (including mycorrhizae)*
        + *Soil enzymes*
        + *Soil microbial biomass*
      * *Earthworms*
      * *Nematodes (not including pests)*
      * *Soil organisms, n.e.c.*
3. **Water**
   1. Water use/loss
      * *Irrigation*
      * *Evapotranspiration*
      * *Runoff*
      * *Drainage*
      * *Water use/loss, n.e.c.*
4. **Pathogens, pests, and weeds**
   1. Pathogens
      * *Pathogens (bacteria)*
      * *Pathogens (fungi)*
      * *Pathogens (viruses)*
      * *Pathogens, n.e.c.*
   2. Pests
      * *Pests (invertebrates)*
      * *Pests (vertebrates)*
      * *Pests, n.e.c.*
   3. Weeds
      * *Weeds, n.e.c.*
5. **Pollutants (including greenhouse gases)**
   1. Greenhouse gases
      * *Carbon dioxide*
      * *Methane*
      * *Nitrous oxide*
   2. Air pollution
      * *Particulate matter (including dust)*
      * *Air pollution, n.e.c.*
   3. Soil pollution
      * *Biocides in soils (e.g., herbicides/pesticides)*
      * *Heavy metals in soils*
      * *Soil pollution, n.e.c.*
   4. Water pollution
      * *Anoxia and eutrophication*
      * *Biocides in water (e.g., herbicides/pesticides)*
      * *Nitrates in water*
      * *Sediments in water*
      * *Water pollution, n.e.c.*
6. **Chemicals and energy**
   1. Agrochemicals
      * *Biocides (e.g., herbicides/pesticides)*
      * *Fertilizers and other soil amendments*
      * *Agrochemicals, n.e.c.*
   2. Energy
      * *Electricity*
      * *Fuel (e.g., tractor fuel)*
      * *Energy, n.e.c.*
7. **Money, labor, and time**
   1. Money
      * *Money, n.e.c.*
   2. Labor
      * *Animal labor*
      * *Human labor*
      * *Labor, n.e.c.*
   3. Time
      * *Time, n.e.c.*
8. **Land**
   1. Agricultural land
      * *Agricultural land use (e.g., land equivalency ratio [LER])*
      * *Agricultural land, n.e.c.*
   2. Semi-natural land
      * *Semi-natural land use (e.g., area conserved)*
      * *Semi-natural land, n.e.c.*
9. **Wildlife (including pollinators and natural enemies)**
   1. Animals (not including livestock)
      * *Amphibians*
        + *Amphibian abundance*
          - *Abundance of amphibians as natural enemies of crop pests*
        + *Amphibian diversity*
          - *Diversity of amphibians as natural enemies of crop pests*
      * *Birds*
        + *Bird abundance*
          - *Abundance of birds as crop pollinators*
          - *Abundance of birds as natural enemies of crop pests*
        + *Bird diversity*
          - *Diversity of birds as crop pollinators*
          - *Diversity of birds as natural enemies of crop pests*
      * *Invertebrates (including insects and other arthropods)*
        + *Invertebrate abundance*
          - *Abundance of invertebrates as crop pollinators*
          - *Abundance of invertebrates as natural enemies of crop pests*
        + *Invertebrate diversity*
          - *Diversity of invertebrates as crop pollinators*
          - *Diversity of invertebrates as natural enemies of crop pests*
      * *Mammals*
        + *Mammal abundance*
          - *Abundance of mammals as crop pollinators*
          - *Abundance of mammals as natural enemies of crop pests*
        + *Mammal diversity*
          - *Diversity of mammals as crop pollinators*
          - *Diversity of mammals as natural enemies of crop pests*
      * *Reptiles*
        + *Reptile abundance*
          - *Abundance of reptiles as natural enemies of crop pests*
        + *Reptile diversity*
          - *Diversity of reptiles as natural enemies of crop pests*
      * *Animals, n.e.c.*
   2. Plants (not including crops)
      * *Grasses*
        + *Grass abundance*
        + *Grass diversity*
      * *Forbs*
        + *Forb abundance*
        + *Forb diversity*
      * *Shrubs*
        + *Shrub abundance*
        + *Shrub diversity*
      * *Trees*
        + *Tree abundance*
        + *Tree diversity*
      * *Plants, n.e.c.*
   3. Fungi (not including crops, mycorrhizae, etc.)
      * *Mushrooms*
        + *Mushroom abundance*
        + *Mushroom diversity*
      * *Fungi, n.e.c.*