## 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.*