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Ground Cover Benefits

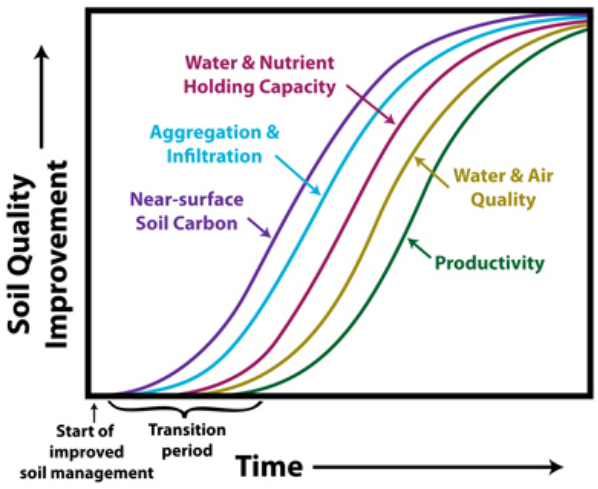
Invenergy partners with experienced ecosystem and vegetation management consultants to establish a long-term, aesthetically pleasing ground cover that creates a win-win for our solar farms and the natural environment. Primarily composed of native grasses, Invenergy solar farms can bring significant environmental benefits to local communities.

Ground cover plans for Invenergy solar projects are established on a project-by-project basis and are united by a common goal to create the maximum environmental benefit in a solar-friendly, cost-effective way. Based on peer-reviewed scientific research and experience working with industry experts, the most prominent environmental benefits expected from the establishment of ground cover across our portfolio can be summarized as follows:

Soil Building – An Investment in Future Crop Production

- **Erosion Control** – Native prairie vegetation offers superior erosion control. The dense network of roots serve as anchors and are exceptionally efficient at holding soil in place. The deep root network accompanied by the dense surface matrix of a prairie can reduce soil erosion 20-fold compared to conventional monocrop fields[1]. Studies by the USDA show that similar soil conservation practices reduce soil wind erosion by 58% and soil water erosion by 72%[2].

- **Organic Matter** - Native prairie vegetation naturally captures and converts atmospheric carbon into plant tissue which is deposited in the soil as a natural fertilizer to be used at a later date[3,4]. Studies by the USDA show that similar soil conservation practices increase soil organic carbon by a measure of 65 pounds per acre per year[2].



Source: United States Department of Agriculture. Natural Resources Conservation Services – Soils

- **Soil Structure** – Native prairie vegetation helps reduce bulk density, increase the prevalence of micro/macro-pores, and increase land productivity[5,6,7].

- **Water Storage** – Native prairie vegetation creates large networks of macropores which increase the porosity and permeability of soil[7,8]. Prairies act like a sponge to soak up water during high-rainfall events and then slowly release water back to plant roots. Prairies have been shown to reduce field runoff by 37% compared to conventional cropland[1].

Habitat Creation and Ecosystem Biodiversity

- **Surface** - Native prairie vegetation provides rare habitat for birds, butterflies, insects, reptiles, and other small wildlife which increases species abundance and biodiversity[5,9]. Prairies have been shown to have a 2.6-fold increase in insect taxa richness, 3.5-fold increase in pollinator abundance, and 2.1-fold increase in native bird species richness compared to conventional cropland[1]. If pollinator-dependent crops are near the solar site, pollinator-friendly ground cover can even promote increased agricultural yields at adjacent farms[10].

- **Subsurface** - Native prairie vegetation creates complex soil food webs which can accommodate a larger population of beneficial microorganisms[11]. Restored prairies have been found to significantly increase an ecosystems total biomass, arbuscular mycorrhizal fungi biomass, and gram-negative bacteria biomass[11].

Clean Air and Water

- **Clean Air** – Native prairie vegetation stores significantly more carbon dioxide than non-native species[12]. Additionally, native prairie vegetation requires minimal maintenance and can help reduce the presence of volatile organic compounds (VOCs) and nitrogen oxides (NOx) – pollutants that form ground-level ozone, in a community[12].

- **Clean Water** – Native prairie vegetation grows earlier in the spring than conventional crops and is able to reduce annual soil nitrogen leaching and increase soil phosphorus retention[7]. In the STRIPS experiment published by the National Academy of Sciences, prairie vegetation reduced phosphorus runoff by 4.3 times compared to conventional monocrop fields[1]. Improved water quality can reduce downstream algae blooms[13], reduce treatment costs for drinking water[14], increase real estate values[15,16], and have a positive impact on human health[17].

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Scientific Studies and Citations

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