Global fertilizer demand, driven by population and economic growth, has environmental consequences. High costs and negative impacts (nitrate contamination, soil acidification, greenhouse gas emissions) associated with nitrogen fertilizers fuel interest in plant growth-promoting bacteria (PGPB) inoculants. While plant-microbe interactions are well-studied, their agricultural application remains limited. Chemical phosphate is inefficiently used by plants, with 75-90% becoming fixed in soil. Biological nitrogen fixation (BNF) offers a sustainable alternative, being less prone to loss and used in situ. The management of plant-soil-bacteria interactions offers increased crop productivity, reduced fertilizer use, and better environmental resource conservation. Beneficial bacteria enhance plant growth, seed germination, and disease resistance. Rhizobia, particularly in soybean-Bradyrhizobium associations, show high BNF efficiency, reducing the need for nitrogen fertilizers and saving billions annually (e.g., ~$7 billion in Brazil for soybeans). Azospirillum species, effective in wheat and maize, also demonstrate plant growth-promoting properties, with field trials showing positive results and leading to commercial inoculant authorization in some countries. Partial fertilizer replacement with Azospirillum could save an estimated US$ 1.2 billion.