Over the past forty years, West Bank Palestinians were transformed from producers to beneficiaries of food. For generations, the farmers produced a diverse array of fruits, nuts, and olives in the West Bank hill heartland, and vegetables and small grains in its fertile wadis. Long the subject of modern scientific interest and intervention, the area is now the beneficiary of extraordinary levels of Western food and agricultural development aid. In contrast to older programs that favored agricultural assistance, ninety percent of this support has come in the form of food handouts in recent years. This apparent shift in Western priorities from agricultural development aid to staple food aid has given rise to an animated debate amongst Palestinians. Food aid is generally seen to create dependency and agricultural aid is understood in terms of ‘development’. However, in this paper, I show that this frame may in fact obscure more than it explains. Perhaps both forms of aid may be at once symptom and cause of the same phenomena: the separation of Palestinians from their own productive capacities. This logic stages Palestinian people and their environments as sites of need and thus intervention. In order to explore this, I place contemporary debates within a historical context in order to understand how the West Bank came to be a site of Western agronomic interventions. More specifically, this paper will trace the complex relationships of U.S. agricultural science programs with local environmental groups and their effect on West Bank agroecologies. This will demonstrate the contested status of modern agricultural science itself within the Arab world and its articulation with a shifting environmental and political landscape.