

FarmVille

In this experiment, each team plays the role of a landlord. There are two types of land you might own: meadow and rocky. Meadow is easy to farm and produces a crop worth \$2 in each period when under cultivation. Rocky land is more difficult to farm and produces a crop worth only \$1 per period when under cultivation. Each team starts the game with 3 acres of meadow and 3 acres of rocky land. There are seven teams in each market.

As a landlord, you are busy with other things and have no time for farming yourself. To make money, you need to make land available for rental by farmers. There are approximately 28 farmers in the market (the exact number varies randomly in each period). Each farmer can cultivate exactly one acre of land. Farmers will rent land at the best deal they can secure; however, if all the deals are sufficiently bad, they will resort to farming their own small holdings. These provide them with \$0 per period.

Communication technology was very limited at the time of this experiment, consisting only of two tin cans connected by a string. As a result, you are not allowed to communicate with any of the other teams other than to discuss property market transactions (details below).

The Rental Market

The land rental market works as follows: In each period, you will indicate to me the number of acres of land of each type you wish to make available for rental. The rental market is competitive—the rental price will reflect that which clears the market. Whenever farmers are indifferent between two types of land, they will opt for the more productive type. The computer will make this calculation and announce it at the end of the period.

Example 1: If all of the available land were placed on the market, then rocky land would rent for \$0 while meadow will rent for \$1 per acre. The reason is that there is an excess supply of rocky land (after the 21 acres of meadow have been rented, only seven farmers are interested in rocky soil. As a result, there is more supply than demand for this type of land). The rental price for meadow is such that farmers are just indifferent between cultivating that land and cultivating rocky land at a \$0 rent.

Example 2: Suppose that all of the meadow were made available and none of the rocky land was. In that case, there are 24 farmers bidding for 21 acres of meadow, so the rental price would be \$2. This price leaves the farmers indifferent between renting and working their small holdings.

The Property Market

While the rental market is formally organized, the property market is not. Between periods, teams are free to buy and sell property for cash at any mutually agreed-upon price. Simply alert me whenever a real estate transaction takes place so I can record it. Transactions are spot market for cash only—no futures or contingent contracts are allowed. The bank will freely lend as much cash as you like at 0% interest.

Improvements

Starting in period 5, new fertilizing and land-moving technology makes it possible to improve land. For a one-time cost of \$3 per acre, an acre of meadow can be improved to become a **verdant meadow**. Verdant meadows yield \$3 of crop per period when under cultivation. Likewise, an acre of rocky soil can be upgraded to meadow for this same cost. Finally, there is an abundant supply of waste land, which is free to purchase. This land is useless on its own, but each acre may be upgraded to rocky soil for a one-time cost of \$3. You are free to upgrade as much land as you wish, paying the \$3 cost per acre upgraded. Once upgraded, an acre remains in its upgraded condition for the remainder of the game. No upgrades are possible beyond verdant meadow. Upgrade decisions are announced at the same time that land is placed on the rental market in each period.

The game is certain to last 10 periods. Following period 10, there is a 25% chance each period that *hyperfarming* will be developed. This technology enables farmers to produce a limitless supply of crop from their small holding. All land then becomes worthless, and the game ends.

Your goal in the game is to make as much money as possible through property and rental markets. There are no interest costs per period in the market.