



Building the Low-Tech Landscape

Part 1: Peasant Economics for *GURPS*

by Matt Riggsby

If the PCs become rulers, or even low-level administrators like samurai landlords, feudal knights, or Viking chieftains, this responsibility brings a number of niggling questions: Just how many people does my character, the Duke of Earl, rule? On how much land? What do they do there? How far is it to the nearest town? How big is it? These are not easy questions.

For a start, our historical data on the subject is sparse and difficult. Demographics and agricultural data before the 19th century are just this side of historical fiction. Where we do have data, it's patchy and difficult to interpret. For example, the weight of a quarter of grain, a standard unit of measure for the Middle Ages, in the west of England in 1239 might be different from a quarter in the north of Spain in 1384 in ways we don't quite understand. Indeed, a quarter in one place might be different from the next county over in the same year.

Even with enough data about historical settings, it's a complex question for fantasy GMs. A great deal depends on variables about which the GM must make essentially arbitrary decisions, since historically they vary enormously through space and time, and no generalization is necessarily appropriate to all or even most historical periods, let alone any historically flavored fantasy world. What, exactly, is the level of agricultural technology? How good is the land? What's the climate like? Is it good land for pigs? Oats? Grape vines? How heavy are taxes, and how do they make their way to the nobility, the government, or the landlord? But for those with a desire to put some effort into setting up initial conditions, this article provides some guidelines for turning those Status 4 and Wealth (Wealthy) advantages into some number of peasants and some number of acres.

And this isn't just an exercise in accounting. In figuring out how many people make a living, the GM will coincidentally answer questions which will let her flesh out the landscape. Are people spread out across broad areas, or tightly packed in dense, closely placed villages? Will adventurers traveling through the countryside pass through dark forests, tromp across endless well-tilled fields, or trip over sheep? This article and its sequels will give you some plausible answers.

Procedure

In order to answer these questions, the GM (or the enthusiastic player who wants to map out his domain in excruciating detail) will need to make a number of decisions and, based on those, do some calculations

Context and Caveats

This article, an attempt to describe low-tech economy and demographics in terms of *GURPS Fourth Edition*, covers TLs 1-4. TL0 hunter-gatherers have a completely different basis of subsistence, and a series of revolutions in agricultural and transportation technology through TL5 render these models quaintly obsolete. You might want to read a few previous articles for background, though it's not necessary. ["Low-Tech Economies"](#) (whose prices will be superseded here) sets out some economic assumptions, placing them the context of being an

to work through their ramifications. To figure out how much land peasants use and how they use it, follow the steps listed below.

"Decide on" items require an arbitrary decision, such as how wealthy the local peasants are. "Determine" items require some decision making within bounds; for example, given the total value of animals the peasants own and a list of prices for individual animals, you'll have to determine how many of each type of animal is present.

"Calculate" items are pure math.

1. Decide on a number of households in the area and their wealth levels
2. (Optional) Decide on the total value of domestic animals. Animal usage is largely a function of wealth and, at these levels, provides a trivial portion of income. The GM may want to ignore steps related to animals and the income they provide unless use of animals is very heavy.
3. (Optional) Determine how many animals of which species are present
4. (Optional) Calculate income from animal consumption and secondary products.
5. (Optional) Decide on land requirements for animals
6. Decide on effective yields of the crops the peasants grow
7. Determine mix and proportions of crops grown
8. Calculate amount of farmland used
9. Decide on amount of wasteland used
10. Calculate total land usage

Once you've gone through these steps, you'll be able to discuss how many people there are in the area, how close together they live, how they effect the landscape, and so on. The math is simple, but there is a lot of it, so, like vehicle design, a spreadsheet might be a good idea.

Peasant Income and Households

It all starts with the peasants. Without them, everyone else starves. The majority of peasants in low-tech societies will be Poor or Struggling, with a corresponding Status of -2 or -1. There may be a few Dead Broke individuals, mostly elderly widows or widowers with no family to support them, and a minority of wealthier (Status 0/Average wealth) peasants who have, through cleverness and hard work, managed to achieve relative prosperity. The Dead Broke peasants are likely to be statistically insignificant in the long run (if they aren't, expect widespread famine), but the Average peasants form a growing minority as improving agricultural technology allows better yields on smaller plots of land.

Historical records have overwhelmingly identified households rather than individuals as the fundamental economic unit, and we'll be doing the same. As it happens, *GURPS Fourth Edition* supports this perspective for peasants. In "Supporting a Family," *GURPS Fantasy* makes the assumption that in a family, the husband has an income while the wife concerns herself with household matters. That's essentially true in most cases, but an oversimplification. In peasant societies, men, women, and children past infancy all perform both productive labor and household maintenance to some degree or another, often divided along gender and age lines. For example, men might plow the fields while women brew ale, tend chickens, and cultivate vegetable gardens for sale outside the household, while older

adventurous merchant. ["For A Few Ducats More: Low-Tech Economies 2"](#) expands on the theme, but isn't as relevant. Since weather is an important factor in peasant life, you may also want to review ["Weather In Gaming."](#)

New World Crops

This article concentrates on crops available in the Old World, but we should at least mention some New World staples. Effective yields of maize are comparable to those of other high-quality grains, although they should be combined with legumes to provide complete proteins. Potatoes have far higher yields, up to twice as much as any grain at the TLs in question, and provide more vitamins, making it less important to consume other foods for complete

children look after the swine and gather nuts and mushrooms in the woods. *Everyone* helps with the harvest and with other time-sensitive labor.

nutrition. When introduced in Europe, though, they fetched very low prices

But regardless of the relative amounts of productive labor different family members provide, we can accept the economic impact of the guideline: a small household has the equivalent of a single "job" worth of income and consumes the equivalent of a single monthly cost of living. Because men have overwhelmingly had ownership of land and other valuables (and have therefore been the primary influence on the family's future income), a family typically has the Wealth level of the husband, although the opposite can happen. For example, a poor nobleman could negotiate a large dowry from a social-climbing family of common merchants, and in an egalitarian fantasy society, a new family could have the wealth of the wife as easily as the husband.

The guideline that someone must have at least Struggling wealth in order to get married should only be observed where most people have Struggling wealth or better. People in extremely poor societies still get married and have children; they just postpone the expensive formalities as long as socially feasible, live shorter lives, have smaller families, and feel bad about not being able to afford a better match. Two Poor characters can support a family, but they must both work (giving the household two incomes), both consume a monthly cost of living, and they'll still be on the edge of starvation.

We'll be working with assumption that peasant households have an average of five people: two parents and three children, perhaps replacing a child with an older relative (for example, an elderly grandparent or an unmarried sibling of one of the parents). However, actual household size and composition varied across wealth levels and cultures. Richer families had more people, while poorer families couldn't afford too many more mouths to feed. Likewise, different cultural preferences and economic relationships could lead to several different incomes for people living in the same home. The GM can determine a ratio of Average to Struggling to Poor jobs' worth of income and, if desired, massage those numbers into larger or smaller physical households as appropriate to a society. For example, a Medieval English peasant might live in a small hut with his wife and children, while the contemporary head of a Viking family might live in the same house as married brothers and grown sons and their wives and children for a "household" of 15 or 20 people, and an earlier Roman villa would have a number of slaves living together in a single very large household.

Typical income for Struggling characters ranges from \$325/month at TL 1 to \$400/month at TL4, although *Fantasy* sets the income of a peasant farmer at \$300, which happens to exactly match monthly cost of living for Status -1 characters. A Poor peasant might only make \$100/month rather than the typical \$130 to \$160 per month for Poor characters. We'll accept that a relatively well-to-do (that is, Average wealth) farmer makes an appropriate income for his TL rather than the slightly depressed income of his poorer cousins.

It's also worth keeping in mind that peasant income comes on a seasonal, annual cycle. A very Poor peasant may make \$1,200 through the course of the year, \$1,680 for typically Poor peasant at TL3, \$3600 for a bad-off Struggling peasant, and \$4,200 for a typical Struggling peasant at TL3. Moreover, it doesn't come in even monthly installments. In most of the world, a peasant's "income" starts out fairly sparse in the spring as edible crops start to grow and animals recover from the winter, hits one or two peaks during major grain harvests (often one in summer and another in late fall or early winter), then drops to almost nothing during the winter months. In tropical regions, income variations will follow dry and rainy seasons. GMs absolutely gung-ho for realistic detail may want to adjust monthly peasant income accordingly.

Primary Crops

Although it's expressed in \$ in the job descriptions, peasant income doesn't really come in the form of money. It comes in as agricultural produce, the vast majority of which is grain supplemented by small quantities of fruit, vegetables, dairy products, and other foods. A peasant needs to consume at least 600 pounds a year of some combination of grains. This is an appropriate level for Poor characters. It provides

far less than the recommended caloric intake for an active adult, but peasants often suffer from inadequate nutrition. If there is any shortfall, starvation is almost certain, and even this level will likely lead to low HT and ST scores. 750 pounds of grain a year is closer to the minimum for a healthy diet; characters with Struggling wealth may consume this much. The excess, if there is any, can be [sold](#) for money. Of course, to engage in interesting trade, you'll need to know just what the peasants are growing.

When possible, farmers will concentrate on crops that will fetch a high price, but they'll have to balance that with the need to feed themselves. Wheat was and is the preferred crop in the west. It tastes better, is somewhat more nutritious by weight than most other grains, and can be converted into superior breads, noodles, and other forms. For large chunks of the Middle Ages, it commanded a price close to double that of cheaper grains. However, it is more susceptible to blights and requires more space and more extensively prepared land than other grains, so most peasants wouldn't be able to grow nearly as much of it as they'd like. Rice, the preferred grain in the east, has similarly preferred taste and versatility, but its cultivation faces obstacles of its own.

Consequently, the bulk of a peasant farmer's crops would be a less tasty but hardier or more prolific crop such as barley, rye, or millet. Despite inferior taste and versatility, they can grow on inferior land and in more demanding climates, and many varieties can be grown much more densely. For example, sown with enough seed, a plot of land could produce up to twice as much barley as it could wheat or rice. Oats deserve a special mention. The nutrition, taste, and versatility are generally inferior to wheat and yields are often even lower. Why grow them, then? First, oats grow reasonably well in cold, damp conditions and on less fertile soil, making them a viable crop for human consumption in environments where even barley doesn't grow particularly well. Second, human consumption aside, it became a vital crop for feeding horses.

Legumes of various kinds -- beans and peas -- were a fairly common secondary crop. They provided significant amounts of much-needed protein and, in some kinds of crop rotation, performed the useful office of partially regenerating the soil's nitrogen supply. Bean prices could vary considerably, but often fell into the range of lower-grade grains.

The chart below shows typical market prices and yields per acre of farmland for staple crops common in many historical and pseudo-historical settings:

Primary Crop Prices and Yields

| Item | Price | Effective Annual Yields |
|---------------------|--------------|-------------------------|
| Low-quality grains | \$0.90/pound | 200-1000 lb./acre |
| High-quality grains | \$1.8/pound | 115-600 lb./acre [1] |
| Oats | \$1.1/pound | 100-500 lb./acre |
| Peas, beans | \$1.2/pound | 200-600 lb./acre |

1. Effective rice yields can jump as high as 1,000 pound per acre, although that requires wet-farming techniques which arguably become available only at TL4.

The effective yield is *not* the total amount of grain a field will produce. It's the amount the farmer can consume, sell, or pay in taxes after setting aside a portion to use for the next year's planting with allowances made for rot and other losses. The *actual* yield, which is relatively consistent across the TLs in question here, is 10-20% higher than the maximum effective yields given here. It appears that until important technological changes at the beginning of TL5, the effective yield is less dependent on technology and more on the

Example: \$ to Goods

Instead of saying that a peasant gets a \$3,600 annual income, the GM may declare that he gets

climate, inherent qualities of the soil, and the amount of labor available to work the land. Farmers in sparsely populated Carolingian France (early TL3) often got under 250 lbs./acre of wheat, but those in densely packed Renaissance Europe (early TL4) could get up to 600 lbs./acre, as could those in Roman Africa (late TL2), all for about the same amount of seed grain.

4,000 pounds of barley,
2,000 pounds of wheat, or,
more likely, a combination
of crops: for example,
2,610 pounds of barley,
315 pounds of wheat, and
570 pounds of peas.

Secondary Crops

If at all possible, a peasant will want to produce more than just the bare minimum of subsistence crops, either for sale or to provide a more interesting and varied diet. These are a few of the more economically significant crops and goods which peasants might produce. Peasants may substitute grains with the foods in this section up to a third of the \$ value of their monthly cost of living (except for beer; it can be assumed that those peasants who can are already converting some of their grain into beer, so the value to be applied against cost of living comes from their grain production).

Something just about every farmer can do is turn some of his grain into a weakly alcoholic, fermented beverage; connoisseurs will object, but we'll call them all "beer." Beer-brewing in various forms is a nearly universal art, and with good reason. Apart from the obvious, if relatively mild, intoxicating properties, it preserves significant nutritive value and provides a relatively safe drink where water is microbially suspect. It appears that peasants in large sections of late Medieval Europe consumed it through the workday. Though barley was the most common grain for it, most grains and starchy tubers can be turned into beer with a successful Brewing roll; failure destroys the raw material.

Warmer, drier areas of the western world have two very important secondary crops: grapes and olives, used overwhelmingly to produce wine and oil rather than for their raw fruit. There have been times when they were even grown together, grape vines curling around olive trees.

Although olive trees produce a relatively large amount of fruit relative to grain fields in terms of raw weight, they don't provide much nutrition, and the fruit needs extensive processing. Although they can be preserved, they are more often pressed for oil, which can pack significant value into a small bottle. But even a little oil represents a lot of olives. It takes about five pounds of olives to make a pint of oil. One odd property of olive trees is that they have alternating harvests. That is, olive harvests tend strongly towards on and off years. If the crop was good this year, it's likely to be bad the next, and vice versa.

Grapes have a few things in common with olives. They can be processed for long-term storage (that is, dried into raisins) but they are more often processed for the liquids they contain, the end result being wine. The yield is more favorable than for olive oil. It takes ten to twelve pounds of grapes to make a gallon of wine.

The major drawback with both olive trees and grape vines is that they take years to set up. Newly planted vines and olive trees don't produce for four to seven years after planting, and olive trees grown from seedlings rather than cuttings can take over a decade to bear fruit! Peasants can communally tend small vineyards and olive groves, but they don't have a great deal of spare labor to invest in such projects. Consequently, wine and olive production are the realm of villa owners, monasteries, noblemen, and others who can support themselves and direct spare labor to experiments and long-term tasks without fear of starvation. Once established, though, both vines and olives can produce fruit for decades with little tending. Some olive groves have been productive for *centuries*.

While important for a variety of nutrients, other fruits and vegetables don't provide nearly as many calories for the amount of work it takes to grow them as grain, and they have historically been far less significant both economically and in the diet. Squash varieties from zucchini to pumpkin, melons, cucumbers, apples, carrots, peaches, onions, garlic, berries, eggplants, mushrooms, turnips (with clover, these become an important part of TL5's agricultural revolution, but through TL4, one is likely to rely on

turnips only in desperation or in Scotland), edible greens, herbs, and the like may, for economic purposes, be lumped together as a variety of other vegetable foods.

Secondary Crop Prices and Yields

| Crop/Product | Cost | Yield |
|---------------------------------|-----------------|---|
| Olive oil | \$20/pint | 35-200 gallons/acre |
| Ale | \$3-\$8/gallon | 1.1-1.5 lb. grain/gallon |
| Wine | \$6-\$30/gallon | 30-60 gallons/acre |
| Other fruits and vegetables | \$.10-\$3/lb. | 75-400 lb./acre |
| Preserved fruits and vegetables | \$.50-\$5/lb. | 2-4 lb. of raw materials per pound of preserved |

Livestock

In peasant societies, animals are kept primarily for secondary products (milk, eggs, fur, feathers, etc.) and labor, with meat a secondary concern, with high-litter, low-maintenance pigs as the most notable exception. How many a peasant or his village can keep depends in large part on how much the peasants can afford to feed them and how much spare land there is for pasturage. Therefore, just as income can be used as a determinant of whether or not a peasant can afford to get married, it can also be used to determine which animals he can keep. Just about anyone can keep one or two small household animals, but the larger the beast, the more expensive it is to keep. Very poor peasants simply don't have the land or spare grain to maintain large animals like horses and cows.

Meat may not have been a day-to-day part of the peasant diet, but it would have been eaten regularly at certain times and in small quantities throughout the year. Specifically, meat would have been eaten mostly during the late fall into winter. A peasant would have to decide whether he could feed both himself and his animals over the cold winter months. The ones not making the cut would end up on the dinner table. Some meat might have been eaten fresh, but where possible, it would be preserved by smoking, salting, and so on. Animals slaughtered would typically have been either very young (since they wouldn't provide as much productive labor or secondary products) or very old (and past their productive prime).

Since they're small, chickens and related fowl are the most common domestic animals, useful for feathers and eggs. Intensive poultry farming could theoretically have supported a huge number on an acre of land. However, birds are more likely to be found raised in small numbers in individual households, with each family owning a rooster and a few hens.

Sheep and goats are kept for milk and wool. Unlike chickens, who can live on forage from a garden and a few handfuls of additional grain, sheep and goats need hay or grain during the winter and pasturage when available. They are notoriously hard on grass and can strip the land of just about all vegetation (intensive grazing is one reason the Mediterranean is so rich in flavorful herbs, whose pungent essential oils make them the few plants sheep and goats won't eat), so

Other Animals

The animals detailed here aren't the only domestic animals, but they are the preferred ones. Without a way to offset the cost of keeping them, most peasants simply couldn't afford animals. However, it's possible to introduce small numbers of other animals. For example, rabbits, guinea pigs, and other small, prolific mammals might be kept as a small-scale meat supply. The GM can treat such animals as costing as much as chickens, but without the egg supply. Likewise, doves, pigeons, and other small birds could be kept, but cost more (\$7-10/bird) and produce inferior eggs (no more than \$1/dozen).

Anyone living near water has the opportunity to catch fish, frogs, and other aquatic animals. A day's fishing in a pond or river can net \$(margin of success on a Fishing roll/2) worth of fish. However, the best

farmers would move them around as frequently as possible.

Depending on the breed, a sheep or wooly goat can produce anywhere from 2 to 20 pounds of raw wool a year, although that upper limit is for certain modern breeds.

Pigs are the only animal found in large numbers which neither work nor produce secondary products and so are raised solely for meat. However, they make up for it by being cheap to keep. Instead of requiring pasturage which might be tilled for more grain or grain itself, pigs can be fed on household scraps and forage in waste land.

Beyond sheep, goats, and pigs are animals large enough to provide useful labor: horses and cattle. Given a choice, peasants are more likely to take cattle than horses. Though they don't provide as much labor on a pound-per-pound basis, cattle can provide relatively ample quantities of milk and, once they die, meat and hides for leather. Many societies consume their blood, although only a few, mostly in sub-Saharan Africa, carefully bleed the cattle through their lives rather than exsanguinate them when they're slaughtered. Most of the actual work is done by oxen, which are castrated bulls.

Horses aren't widely used for secondary products (in addition to being relatively poor milkers, their hair makes proverbially uncomfortable clothes), but they do provide useful labor. In fact, appropriate breeds of horses provide significantly more labor than oxen. They provide more useful hours of labor per day and, since they can move faster, can get more land plowed per hour. Unfortunately for peasants, horses also have more expensive tastes than oxen. Despite being of roughly comparable sizes, a horse cost about four times as much to feed. Oxen can get by on a lot of hay and a little bit of grain (typically oats). For horses, the opposite was true. For antiquity and most of the Middle Ages, the additional productivity they might get out of a horse didn't justify the added cost of keeping a horse, but in the later Middle Ages, agricultural productivity reached a point where horses could become common farm animals.

A reasonable rule of thumb is an average of \$5 worth of animal per Poor household, \$100 worth of animal per Struggling household, and \$500 worth of animal per Average household. In any given village, some people might have a few chickens, while others have a few sheep and still others a cow or two. The cost of caring for them is, like the cost of supporting a family, included in the cost of living. It's unlikely that peasant-owned animals will be more than 10% cattle and horses, nor are they likely to have more than two fowl per person (herd animals are much easier to keep in large numbers; a single family could easily take care of over 100 sheep if that were their full-time occupation). In addition to income from secondary products such as cheese and wool, a household can get 5% of the value of its animal holdings annually from selling new offspring or slaughtering and eating them, or 8% from pigs.

weather for sitting out and fishing is also during important seasons for farming, so a peasant is far better off in the long run working in the fields than sitting by the river.

Finally, there are dogs. Anyone involved in herding will have them as a matter of course, and regular hunters may have them as well. However, their need for meat makes them unlikely pets for poor peasants tilling the soil. A village with a significant number of animals may have a handful of dogs, but most dogs will be in the hands of the upper classes.

Animal And Animal Product Prices

| Product/Animal | Price | Productivity/Land Requirement |
|----------------|---------------|---|
| Cheese | \$2-\$5/pound | 1.25-1.75 gallons milk/lb. (goats produce 50-250 gallons/yr., cows produce 100-500 gallons/yr.) |
| Wool | \$4-6/pound | 2-20 lb./animal/yr. |
| Eggs | \$2/dozen | 3-10 doz./chicken/yr. |
| Fowl | \$5 | 200/acre |
| Sheep, goat | \$140 | .5 to 10 acres each |
| Pig | \$150 | .25 to 5 acres each |

Cow \$400 1 to 20 acres each

Though our primary focus here is soil-tilling peasants, it's worth noting conditions for nomadic herders. Full-time herders are likely to have animals on the upper end of the given productivity ranges. If a sheep only produces three or four pounds of wool a year, it would be impossible to keep track of enough of them to make wool production anything more than a sideline. However, for sheep and goats producing 10 pounds of wool a year or more, including income from cheese and wool, a reasonably-sized flock of 60 would be enough to support a Struggling shepherd and his family (and their relatively meat-heavy diet would support a dog or two to help out). It's a relatively inefficient use of land; at a relatively favorable 3 acres per sheep, that's 120 acres, as opposed to a mere 8.3 for the Struggling peasant in the Primary Crops example. However, the land on which sheep are grazed can be very poor indeed, so grazing animals can be a great way of making use of land that would otherwise provide few or no resources.

Land Use And Distribution

The amount of land farmers work depends on a great many factors: soil fertility, density of existing population, extent and distribution of arable land, and so on. Peasants can keep up to 12 acres per household under active cultivation. It's possible that widely available animal labor would enable peasants to cultivate even more, but impossible to say for sure; societies with enough animal resources to make a difference were already running out of arable land. To calculate the amount of land under cultivation, the GM must set an effective yield for commodities listed in the crop and product tables above. Given that and the types of crops peasants are growing, the number of acres under cultivation can be computed.

But that's not all the land they need. Crop rotation ensures that there will be empty land along with land being farmed. At TL2 and most of TL1, every acre under cultivation will usually be matched by another acre lying fallow for the year (light grazing might be allowed on the fallow land, but heavy grazers like sheep and goats would be kept elsewhere). At TL3, only one acre needs to be set aside for every two acres being cultivated, and at TL4 only one fallow acre for every three being cultivated. If the society cultivates animals in significant numbers, they may need separate land as indicated in the table above.

The amount of space taken up by buildings is extremely variable, depending on climate and extent of arable land as much as anything else, but is essentially negligible when compared to the size of nearby fields. Buildings might provide anywhere from 10 to 40 square feet of space per person, and anything from 10% to 100% extra space might be taken up by lanes and alleys, gardens, courtyards, and other exterior spaces around homes. Wealthier households and households in colder climates have more indoor space and provide indoor space for animals as well, resulting in combined barn-homes. The body heat large animals provide is very welcome in winter. Warmer climates usually lead to more outside space like courtyards and fenced-in compounds. Either way, even generous allowances for space make it unlikely that the living area taken up by a village will surpass a single acre. Once they settle down to doing agriculture, humans almost universally build square or rectangular houses; rectangular houses in the same village often end up oriented in the same direction.

Animals Example

Consider a village of 100 Struggling households. They have a total of \$10,000 worth of animals. If they're members of a poultry-loving society, that could be 10,000 chickens. However, that's fairly unlikely. A more likely distribution might be 11 cows, 16 pigs, 12 sheep or goats, and 304 fowl. Assuming 5 acres of pasturage for each cow, 3 for sheep or goats, and .5 for pigs, the village requires 98.5 acres of pasturage to keep its animals. Assuming modest yields of cheese, wool, and eggs, the annual production of secondary products will be below the value of the animals themselves. If we were being insanely detailed, we might use the average animal-income to reduce the average acreage of crops grown, but it's probably not worth the effort.

Finally, areas around peasant villages often left woodland and other "waste" areas for wild resources: honey, mushrooms, foraging for pigs, wood for construction, and so on. Peasants probably wouldn't be allowed to hunt in those areas, but they might nevertheless try to poach rabbits and birds. There are likely to be at least one or two acres still "wild" per person (not per household), but it's possible to get by with less if the crops grown are particularly versatile (for example, if homes are built entirely from mud and straw, reducing the need for wood to next to nothing).

The household wouldn't necessarily have owned or otherwise controlled all of that land, nor would it have been consolidated around the household. A house might have had a bit of garden around it and perhaps a pen for holding animals overnight, but the farmland was likely a section, or even several different sections, of a large communal field, pasturage for animals would have taken the form of a village green or a sparsely vegetated area of waste land, and any intentionally preserved wild areas would have been beyond the bounds of the village itself.

As *GURPS Fantasy* notes, a single village and its related farmland is unlikely to cover an area of more than 1,600 acres, though the wild lands it draws from can be farther away. Theoretically it could be as high as up to about 2,000 acres if population densities are very low. Such a village won't have a population of more than 1,000, even at the best of times, and will probably be much smaller. However, that just puts a limit on how many people can live close together. A village, as a social and legal unit, may consist of multiple clusters of houses each separated by an areas of fields or common pasture, with a few more outlying homes places as their independent-minded occupants see fit. Finally, the fields will be punctuated and surrounded by patches of woodland and pasture.

All things being equal, settlements would tend to assume a hexagonal distribution across the landscape. To demonstrate possible relationships between villages, the table below indicates the average distance between villages (in miles), given a range of population densities and village populations:

| Avg. Population | Population density (people per square mile) | | | | | | | |
|--------------------|--|-----|-----|-----|-----|-----|-----|-----|
| | 5 | 10 | 15 | 20 | 25 | 50 | 75 | 100 |
| 250 | 4.0 | 2.8 | 2.3 | 2.0 | 1.8 | 1.3 | 1.0 | 0.9 |
| 500 | 5.6 | 4.0 | 3.3 | 2.8 | 2.5 | 1.8 | 1.5 | 1.3 |
| 750 | 6.9 | 4.9 | 4.0 | 3.5 | 3.1 | 2.2 | 1.8 | 1.5 |
| 1000 | 8.0 | 5.6 | 4.6 | 4.0 | 3.6 | 2.5 | 2.1 | 1.8 |

However, all things are never equal. A number of factors will influence the placement of villages in the landscape. The most

Land Use Example

From the example above, a farmer is growing 2,610 pounds of barley, 315 pounds of wheat, and 570 pounds of peas. The GM decides the effective yield for barley is 450 lbs./acre, the yield for wheat is 315 lbs./acre, and the yield for peas is 380 lbs./acre. The farmer, therefore, is growing 5.8 acres of barley, one acre of wheat, and 1.5 acres of peas, for a total of 8.3 acres.

At TL1-2, the farmer needs another 8.3 acres to lie fallow, or 4.15 acres at TL3-4. Assuming 1 acre of wild land per person and an average household of 5 people, this peasant family needs 21.6 acres of land at TL1-2 or 17.45 acres at TL3-4.

If the peasant typical of the village in the animals example, the 100 households require just over 2,258 acres at lower TLs or 1,843 at higher TLs. However, only about 1,660 of that is farmland at the lower TLs and 1,245 at the upper, so such a settlement would strain but not quite break practical limits for a settlement size.

Colonization

important is that good farmland is hardly evenly distributed, so villages won't be either. People will live where the good farmland is, clustering together with easy access to good fields and ignoring large patches of less desirable land. Villages are more likely to crop up on the sides of hills (and, if they're not too tall and already occupied by feudal strongholds, the tops), taking up a minimum of valuable farmland. However, they'll also cluster close to streams and ponds to take advantage of access to a water supply and possibly fishing. A village may end up strung out along a road, if there is one, to make it easier to get to the nearest church, mill, etc. Villagers might want to spread their homes out across the landscape to be closer to individual fields but be forced by circumstances to live close together for defense or simply for companionship.

Likewise, the numbers presented here may create the impression of much higher potential populations than were found anywhere in history but, again, the local geography will be a determining factor. A square mile of good farmland might support nearly a thousand people, but that wouldn't be a representative square mile. Rivers and lakes, mountains and hills, marshes, large forests, rocky patches, and simply land with poor soil are all unsuitable for the kinds of intensive cultivation described here and will keep population densities over large areas down. At the beginning of the Middle Ages, England and much of France had 5 to 10 people per square mile. Typical population densities in Europe's later Middle Ages were in the 50-75 people per square mile range, with a few particularly highly populated countries (for example, Holland, a relatively small country not known for vast deserts or mountain ranges which might drive down population density) reaching as many as 100 per square mile at the dawn of the Renaissance.

Another large-scale concern, this one in time rather than in space, is soil exhaustion. Early agricultural techniques (for example, slash-and-burn) provide initial fertility every bit as good as later TLs, but they exhaust the soil quickly and force farmers to move on after a few years. Fortunately for low-TL farmers, population densities are usually low enough that there's new land to move on to. Higher TL crop rotation systems spread out the agricultural burden and give fields time to recover. But that only slows the soil's decline to periods measurable in decades rather than years. Peasants might slowly move from one set of fields to another abandoned by their fathers or grandfathers as their own soil becomes inadequately fertile over the generations. It has been suggested that Europe was reaching its maximum agricultural carrying capacity by the time the Black Plague hit and that soil quality was deteriorating despite the three-field system. Had the plague not killed so many people so quickly, Europe might have faced widespread famine instead.

At any rate, soil depletion is unlikely to be a pressing concern for individual TL3-4 farmers, in that people have several years to deal with it before anyone starts starving. However, from a world-building point of view, it's worth keeping in mind that areas with very high population densities may soon face a collapse in their agricultural production as fields become exhausted and the farmers have nowhere else to go.

Death And . . . What Was That Other Thing?

So far, we've sketched out the agricultural basis of low-tech economies, and how most people support themselves once they've settled down to live in one place. In part two, we'll be looking at more social and political aspects. In particular, we'll be dealing with taxation and support of non-farmers, and how this all plays into supporting cities, towns, and wealthy overlord.

Article publication date: June 9, 2006

146 *Pyramid* subscribers rated this article **4.16** on a scale of 1 to 5. Visit the [ratings page](#) for more info.

Copyright © 2006 by [Steve Jackson Games](#). All rights reserved. Pyramid subscribers are permitted to read this article

online, or download it and print out a single hardcopy for personal use. Copying this text to any other online system or BBS, or making more than one hardcopy, is *strictly prohibited*. So please don't. And if you encounter copies of this article elsewhere on the web, please report it to webmaster@sjgames.com.



[Home](#) - [Subscribe!](#) - [Current Issue](#) - [Playtesting](#) - [Chat](#) - [Advertising](#) - [Index of Advertisers](#) - [Feedback](#)