



## Soil Contamination: A Farm Buyer's Primer

**Before you purchase a property, be sure you know what's in the soil. Everything from roadside pollution to illegal-drug contamination can affect your farm's usability.**

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### Pesticides

The potential for pesticide contamination can also be fairly obvious to spot. Sites of pesticide mixing and loading are almost always going to be contaminated enough to warrant not putting your vegetable garden there. But the real question is whether they will need serious remediation work.

Was the property a large farm? Did it have commercial agriculture permits? If so, there are pesticide use reports on file with your county agricultural commissioner. Pesticides often degrade quickly, and their use alone does not mean that the soil is contaminated.

Over the years, however, there have been pesticides on the market that were later found to persist in the environment. (For instance, lead-arsenate pesticides that were used heavily in the mid-1900s are now known to be sources of persistent lead and arsenic, the top two most commonly found soil contaminants.)

The agricultural commissioner will also be able to tell you which persistent pesticides are specific to the property's farming type. While agricultural-commissioner personnel may not know if there were any accidental pesticide spills, they will be familiar with the pesticides' longevity and can answer many of your questions.

### Arsenic

Arsenic, that favorite poison of literature and film, was used in almost all pressure-treated wood from 1950 until 2004. Especially in areas of heavy rainfall, this chemical may have leached excessively into the soil.

Other arsenic contamination can result from coal- and smelting-plant emissions or other industrial processes. If you're looking at land in an area that may be within the range of industrial pollution, there are probably other concerns, as well.

The local EPA will have information on industrial pollution in the area, what contaminants to look for and the required remediation measures, as well as industrial liability.

### Illegal Activities

A dangerous and increasingly frequent source of contamination in rural areas is illegal methamphetamine laboratories. Ask your real estate agent or the seller if there have been any known meth labs on the property.

In most states, disclosure laws require that they tell you if there have been and, if so, what cleanup has been done. You can also check with local law enforcement. The danger of finding that a meth lab has been on your property is that the chemicals used differ drastically and are most assuredly not disposed of properly. This means you probably have a very expensive cleanup on your hands.

To begin cleanup, law enforcement or hazardous materials (hazmat) personnel have to determine the possible contaminants present, and soil samples have to be sent to labs for tests. The local EPA will use that information to determine the level and accepted procedures of remediation.

Often times, no existing procedure for cleanup exists because the contaminant is not regularly found in the environment. Local law enforcement can help you determine your next step, as well as decide if the property is worth investing in and what sort of cleanup or monitoring you'll be responsible for.

### Soil Testing

Once you have an idea of what contaminants might be present on a property, it's time to collect soil samples to send to the laboratory.

Your county agricultural commissioner can give you step-by-step instructions for soil sampling and connect you with registered laboratories. It's important to protect the integrity of the samples with proper labeling and handling.



Wear protective clothing, as you don't know what you're dealing with. If the soil sample is contaminant-positive, don't panic. Your next step is to contact the state EPA.

## Cleanup

If you're below the MCL, you'll need to monitor the contamination, and you may be held responsible if it worsens.

The EPA can offer options for small-scale remediation. Soil cleanup methods depend on the contaminant concentration level and the potential for its spread. The required remediation can range from simple dilution by mixing with clean soil to complete excavation of tons of soil and off-site cleaning or hazardous waste disposal.

For instance, lead can be immobilized in the soil by increasing the pH to 6.5 or higher; this is a simple fix to a common problem. Arsenic, on the other hand, requires a solidification and stabilization procedure that requires a contractor. Petroleum-tank leakage also requires expensive treatment—most commonly soil removal.

Remember, it's the seller's responsibility to fix the problem if the concentration is above the MCL. You may have an unhappy seller on your hands, but better that than an unhappy you down the road.

Remediation has the potential to be incredibly expensive. Fortunately, grants are available. Again, the local EPA office and your agricultural commissioner are invaluable sources for finding funding. Additionally, pollution insurance is available.

You'll probably want to look for what is known as Cost Cap or Cost Containment Insurance, which will help to cover problems arising with known contaminants. Another option is Contaminated Property Development Insurance, which covers you for known contaminants and unknown risks.

However, if you're unsure whether anything is present, Pollution Legal Liability is general coverage for unknown contaminants and may be of some help down the line.

If you decide to go ahead with the purchase, be sure that before committing to buy, you know the type, amount, and potential for expansion of the contaminants present.

You will want to know exactly what the source is, where the boundaries of contamination lie, and the estimated cost for clean up or monitoring. An environmental consultant can help you with all of this. Be sure to ask the seller if there's knowledge of any other contamination on the property or if the property may be the source of pollution for neighboring land.

Any agreement should clearly state who's responsible for the cleanup and costs. If there's existing pollution insurance on the property, see if it can be transferred. Only if you're fully aware of the situation can you make an informed buying decision. It will be worth it in the long run to cover all of your bases before accepting responsibility for potentially contaminated land.

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## Soil-contaminant Speak

### Soil contaminant

According to the EPA, "Soil contamination is either solid or liquid hazardous substances mixed with the naturally occurring soil. Usually, contaminants in the soil are physically or chemically attached to soil particles, or, if they are not attached, are trapped in the small spaces between soil particles."

### Remediation

The process of reversing or stopping environmental damage. This can be done either on- or off-site. On-site is usually preferred because it is cheaper, but off-site is a more complete cleanup.

### Bioremediation

Remediation of the environment using microorganisms, fungi or plants. This is an emerging method and is still being studied for many contaminants. While it may seem like the easiest method of soil cleanup, it's not a passive technique and has high startup and maintenance costs. Additionally, the plant biomass oftentimes must be disposed of in the



same way as hazardous waste.

#### OUST

The EPA's Office of Underground Storage Tanks. They manage underground storage tanks and respond to leaks. They also distribute the Leaking Underground Storage Tank Trust Fund.

#### Superfund sites

These are EPA-designated sites of uncontrolled hazardous waste. They have been registered on the Nation Priorities List as needing to be urgently remediated. These sites are usually old industrial sites. You will see this name come up if you research soil contamination, but this shouldn't apply to you.

#### Click Before You Buy

Environmental Protection Agency Soil Contaminants

"Bioremediation of Contaminated Soils" by the American Society of Agronomy, Crop Science Society of America and Soil Science Society of America

EPA's Leaking Underground Storage Tank Trust Fund

EPA's Environmental Response Team Standard Operating Procedures: Soil Sampling

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