


## Three Sisters Project: Quick Soil Guide for Home Garden Health

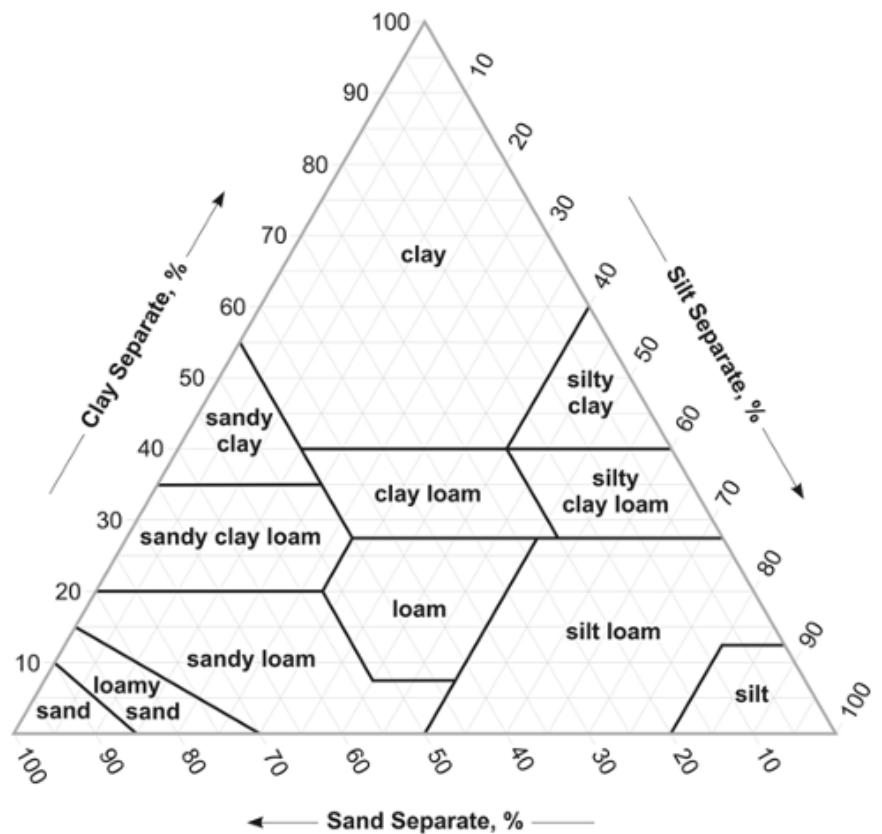
In order to help manage a home garden, it's best to know what soil conditions you are starting with. Soil texture can help determine where to begin. Texture can influence aeration, available water content, and nutrient availability.

It's important to remember that texture can't be changed, but structure is a dynamic property that can be altered with management. However, texture influences how we can manage the soil, these changes won't occur over night or even one growing season. It's best to be consistent and mindful of how your garden soil is doing.

Let's start by collecting a representative soil sample from your garden. Scan the code below for a tutorial video on collecting a soil sample. Once you have your sample collected, start with step one below, and continue with the flow chart on the back. Continue with steps two and three. 

Prepared by the Iowa State Three Sisters Team

### Soil Textural Triangle



Scan to  
get  
started!



**STEP 1:** Start with a small handful of soil, about the size of a golf ball, and slowly add water a drop at a time, mixing as you go, until you have a ball of soil that has the consistency of putty. Gently squeeze the ball to determine if it will stay together in a ball or fall apart.



**STEP 2:** If the ball of soil stays intact, gently press the ball between your thumb and index finger, trying to work out to form a ribbon. If you can form a ribbon, measure how long the ribbon is before it falls apart.



**STEP 3:** After completing the ribbon test, add water to a pinch of soil in the palm of your hand until you have a muddy puddle. Rub the mud puddle against your palm and determine if it feels gritty, smooth, or equally gritty and smooth.

Source: Ritchey et al., 2015

**Table 1.**

	Sand	Silt	Clay
Water holding capacity	Low	High	High
Feel when moist	Coarse/gritty	Floury/soft	Sticky
Desirable properties for plants	Aeration	Available water	Nutrient holding capacity

Source: Anderson et al., 2021

START

Place approximately 25 g soil in palm. Add water dropwise and knead the soil to break down all aggregates. Soil is at the proper consistency when plastic and moldable, like moist putty.

Does soil remain in a ball when squeezed?

Is soil too dry?

Add dry soil to soak up water

Is soil too wet?

SAND

Place ball of soil between thumb and forefinger gently pushing the soil with the thumb, squeezing it upward into a ribbon. Form a ribbon of uniform thickness and width. Allow the ribbon to emerge and extend over the forefinger, breaking from its own weight.

LOAMY SAND

Does soil form a ribbon?

Does soil make a weak ribbon less than 2.5 cm long before breaking?

Does soil make a medium ribbon 2.5-5 cm long before breaking?

Does soil make a strong ribbon 5 cm or longer before breaking?

Excessively wet a small pinch of soil in palm and rub with forefinger.

SANDY LOAM

Does soil feel very gritty?

SANDY CLAY LOAM

Does soil feel very gritty?

SANDY CLAY

Does soil feel very gritty?

SILT LOAM

Does soil feel very smooth?

SILTY CLAY LOAM

Does soil feel very smooth?

SILTY CLAY

Does soil feel very smooth?

LOAM

Neither grittiness nor smoothness predominates.

CLAY LOAM

Neither grittiness nor smoothness predominates.

CLAY

Neither grittiness nor smoothness predominates.