YOUR FARM, YOUR SOIL

TEXAS A&M AGRILIFE

INTRODUCTION

Improving soil health has many benefits, including drought resilience, decreased nutrient loss, reduced erosion, and reduced operating expenses. Many practices can improve soil health including using cover crops, adding manures, and reducing tillage. Nevertheless, there is not widespread adoption of these practices in Central Texas. To better understand farmers' perceptions about soil health and conservation tillage, researchers at Texas A&M University worked with the USDA National Agricultural Statistics Service to survey Texas farmers.

The survey asked farmers about soil health and soil health practices, focusing particularly on no-till and strip-till. A total of 575 farmers across 38 counties responded, giving a clear view of how farmers think about soil health and their options to improve it.

CHARACTERISTICS OF THE OPERATIONS

The average farmer in this project is 68 years old and has been farming for 34 years. The average operation under a rental agreement is 681 acres, while the average self-owned operation is 480 acres. See Table 1 for a breakdown of average acreage by crop. Only 21% farm full-time and 9% get their full income from farming. The rest farm part-time and receive income from other sources.

More than half the farmers (55%) plan to continue to farm for at least five more years; others plan to pass their operation to relatives (11%) or a non-relative (6%), or do not know who will run the farm in five years.

Most farmers indicate reluctance to adopt no-till or strip-till. Only 17% of farmers currently use no-till and 5% use strip-till on any of their fields. Regardless of current tillage practice, more than 70% of the farmers plan on continuing their current practices. Of those using no-till, 32% plan on increasing the number of acres under no-till. Only 8% of those who do not use no-till plan to adopt no-till.

Table 1

CROP	AVERAGE ACREAGE
Corn	350
Soybean	65
Wheat	158
Cotton	311
Sorgum	148

HIGHLIGHTS

- Texas A&M University researchers with the USDA National Agricultural Statistics Service surveyed farmers in Central Texas on attitudes and behaviors surrounding soil health.
- Majority rent more land than they own and grow predominantly corn and cotton.
- Only 17% use no-till and 5% use strip-till.
- Majority believe soil health is important, but about a third are uncertain whether no-till or strip-till would have any effect on the health of their soil.
- The fact that reducing compaction was important but reducing bulk density was not, highlights how important it is for scientists and farmers to use common language to describe indicators of soil health.

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OPINIONS ON SOIL HEALTH

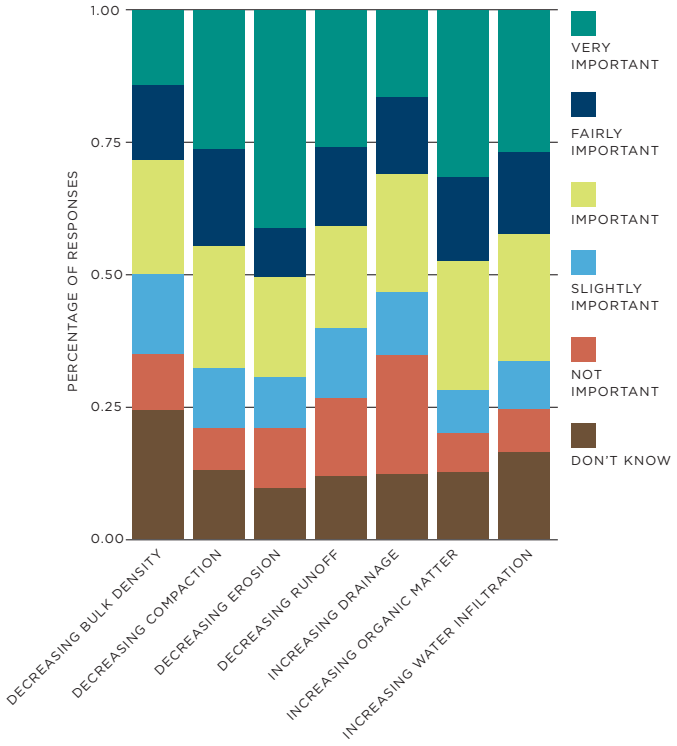
Farmers were asked to rate the importance of seven soil health changes on their operation:

1. Increasing water infiltration
2. Increasing organic matter
3. Decreasing runoff
4. Decreasing erosion
5. Decreasing bulk density
6. Decreasing compaction
7. Increasing drainage

Most farmers report all changes in soil health as important to some degree. Decreasing erosion is very important and increasing drainage is least important. Although bulk density is closely related to compaction, almost a quarter of the farmers did not know whether a decrease in bulk density is important or not.

Figure 1

How important is each change in soil health?



SUMMARY

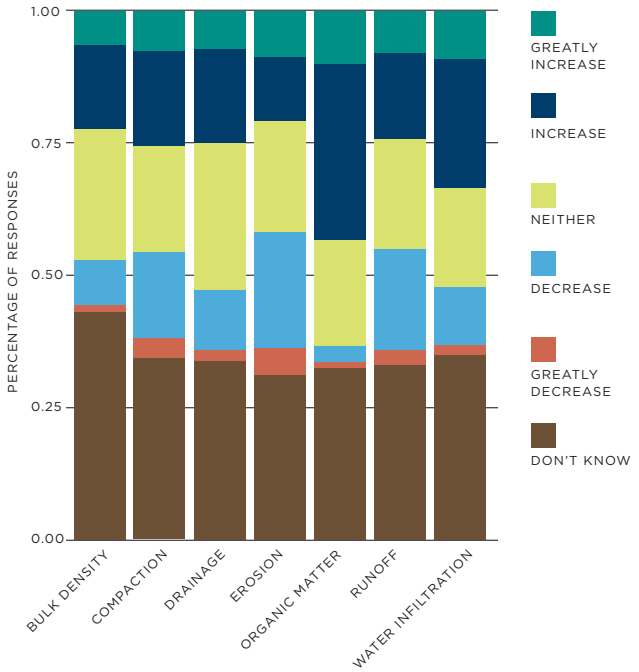
Farmers in Central Texas generally agree that improving soil health is important. There is less agreement – and much uncertainty – on whether no-till or strip-till would be effective tools to improve soil health. Field studies in the area have shown that no-till does have the potential to significantly improve soil health, but the adoption rates remain low, presumably because of the uncertainty amongst farmers. The Texas A&M survey indicates a clear disconnect between science and practice, and much potential for improving soil health through higher adoption of soil health practices like no-till.

OPINIONS ON NO-TILL/STRIP-TILL

The survey asked if soil health characteristics would be affected by no-till or strip-till, revealing a high level of uncertainty. More than a third did not know how the practices would affect soil health. Nearly half agreed that no-till or strip-till would increase organic matter, but only a quarter indicated that the practices would improve the other characteristics. While many studies have shown that reducing tillage can reduce bulk density, only 10% of the surveyed farmers believed it would have this effect on their farms. Clayey soil and warmer climates reduce the benefits of no-till and strip-till and this may be one reason farmers in Central Texas are unsure about the benefits of the practices.

Figure 2

How would no-till/strip-till affect the following characteristics?



This uncertainty extends to other dimensions. A majority of farmers report they do not know whether a switch to no-till would reduce their costs or increase profits, yield, or efficiency.

SOIL STEWARDSHIP & NO-TILL/STRIP-TILL

There is a strong sense of stewardship in the surveyed farmers; almost 90% believe it is their duty to protect their soil and reduce erosion from their land. However, only 22% believe it is their duty to adopt no-till or strip-till.

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