

# Soil Compaction Tester

**A simple, easy-to-use management tool that can help you: Increase Yields. Decrease Costs.**

## The High Cost of Compaction.

Soil compaction is becoming a more serious problem in all parts of the country. A problem that is very expensive in several ways.

- First, compacted soils are much harder to work. Research in Illinois demonstrated that over 90 percent more power is required to plow severely compacted soil.
- Second, compacted soil results in poor root and plant development. Compacted soil is dense; roots cannot grow in it. That can reduce yields by 20, 30, even 50% or more.
- Third, compaction severely restricts the manner in which soil naturally manages water; both by holding water near the surface of the field – and by limiting the ability of plants to take up water and nutrients from below. Excess surface water makes fields difficult to work in the spring and fall. And water trapped under the compacted layer reduces plant development and yields, especially during dry periods.
- Fourth, a compacted zone means that the fertilizers, pesticides and herbicides you apply cannot be utilized efficiently. If they are not absorbed, they can be washed away easily. Even more serious, they can be trapped near the surface in a concentrated form resulting in crop damage and

yield reductions. They can also be captured under the compaction zone, compounding the problem.

## The Answers You Need.

The DICKEY-john Soil Compaction Tester gives you quick answers to the questions you need to ask about your tillage program and your field conditions.

- Is your soil compacted?
- How severely and at what depth?
- How deep have you actually been tilling?
- How deep do you need to till?
- How deep can your roots grow?
- If there's a problem, what's the best solution?
- Has your tillage system been hurting or helping the situation?

## Is soil compaction costing you?

**Find out fast with a simple, low-cost DICKEY-john Soil Compaction Tester.**



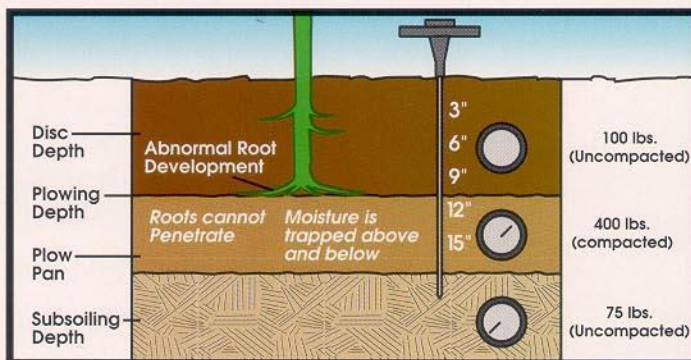
- Rugged, molded housing and handle.
- Easy-to-read color coded stainless steel dial. Liquid filled to reduce shock.
- Stainless steel rod.
- Depth marks at 3, 6, 9, 12, 15 and 18 inches.



# Soil Compaction: Identify it—Control it.

## What Causes Soil Compaction?

Soil compaction can occur in any type of soil. Typically, after years of traffic, a "plow pan" forms below the tillage zone. Traffic and tillage cause soil particles of different sizes to become clustered together, filling up all available air spaces, compacting into a hard layer that can't easily be penetrated by moisture or roots. Some soil types are more susceptible to compaction than others, but once a compaction problem has become established, it can only get worse. As moisture penetrates the compacted layer, and traffic continues, the compaction layer becomes denser and thicker.



Typical Compaction Situation

## How to Detect a Compaction Problem.

Is soil compaction a problem in your fields?

Now you can find out easily with a **DICKEY-john Soil Compaction Tester**.

### Compaction and Root Development

0-200 lbs. ....good  
200-300 lbs. ....fair  
300-500 lbs. ....poor

Here's how it works.

1. Test your soil in the early spring when moisture content is relatively high and before going to the field in the fall with your tillage tools.
2. Drive the tester slowly into the ground with steady even pressure.
3. The gauge gives you a reading in lbs. per square inch of the pressure it takes to penetrate your soil.

4. Record the pressure at different levels specifically noting the levels where pressure increases and again when it decreases.
5. Perform several tests in the same area for best results.
6. Test several areas.
7. When you find evidence of compaction – areas, especially tire tracks, where you meet greater resistance – dig to the depth of the indicated compaction to find evidence of abnormal root development.

Please note that soil moisture can greatly affect the readings of the DICKEY-john Soil Compaction Tester. When moisture content is high, readings may appear misleadingly low. When soil is dry, readings may appear higher.

## What to do about it.

Once you know exactly how compacted your soil is, and at what depth, it is relatively easy to precisely fit a solution to the problem. Your specific solution could be as simple as limiting traffic in some areas of a field, seeding a cover crop to improve water management, or avoiding wet fields. Or, you may have to rethink your tillage program by choosing a tool that will penetrate the

compacted zone—not by choosing a tool that will merely change the location and extent of compaction.

However, you can't begin to think about a solution until you have identified the problem. And you can do that quickly and easily with a DICKEY-john Soil Compaction Tester.

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