

**CASE II** yield-till<sup>®</sup> system

**WATER**

# The Essence of Farm Profit



**What every farmer should know about water management... and how it leads to higher yields.**

# WATER MANAGEMENT:



You cannot control the amount of rainfall you receive. But you can control how your plants utilize it. Proactive water management is the key to higher yields in dry and wet years. Therefore, understanding how water interacts with soil is essential. Let's examine a few common water management misconceptions.

## **DEFINITIONS**

**Infiltration:** water entry into the soil.

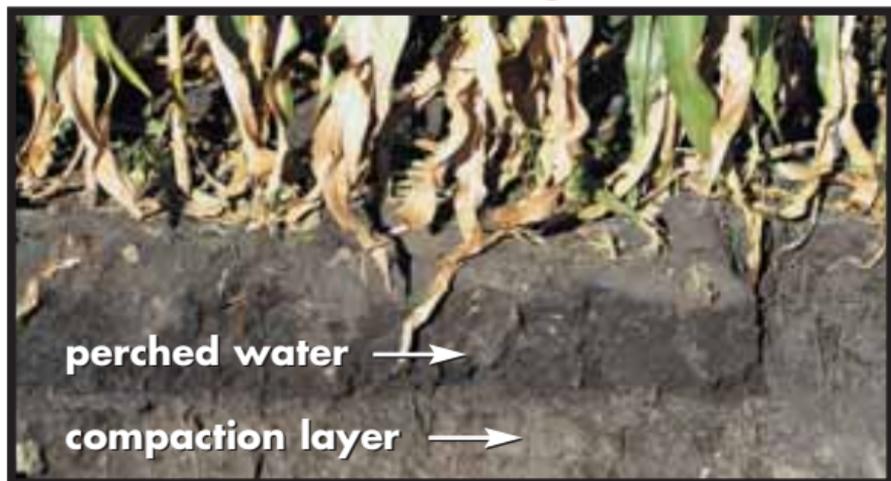
**Permeability:** ease of water movement through the soil.

**Percolation:** excess water moving deeper into the soil profile.

**Soil Tilth:** partly, a measure of a soil's ability to absorb and hold water.

# MYTHS AND FACTS

## ***MISCONCEPTION:*** ***Good rains will take care of a drought.***



Maybe, maybe not. During severe droughts, soil moisture gets depleted all the way down, deep into the soil profile. This important moisture reserve must be replenished for plants to thrive, but water cannot get down into the subsoil if your soil is compacted. Rainfall on compacted soil only soaks down as far as the compaction layer. The rest either runs off or creates ponds, a waste of precious resources.

## WATER MANAGEMENT:

### **MISCONCEPTION:** *Ponding is a result of too much rainfall.*

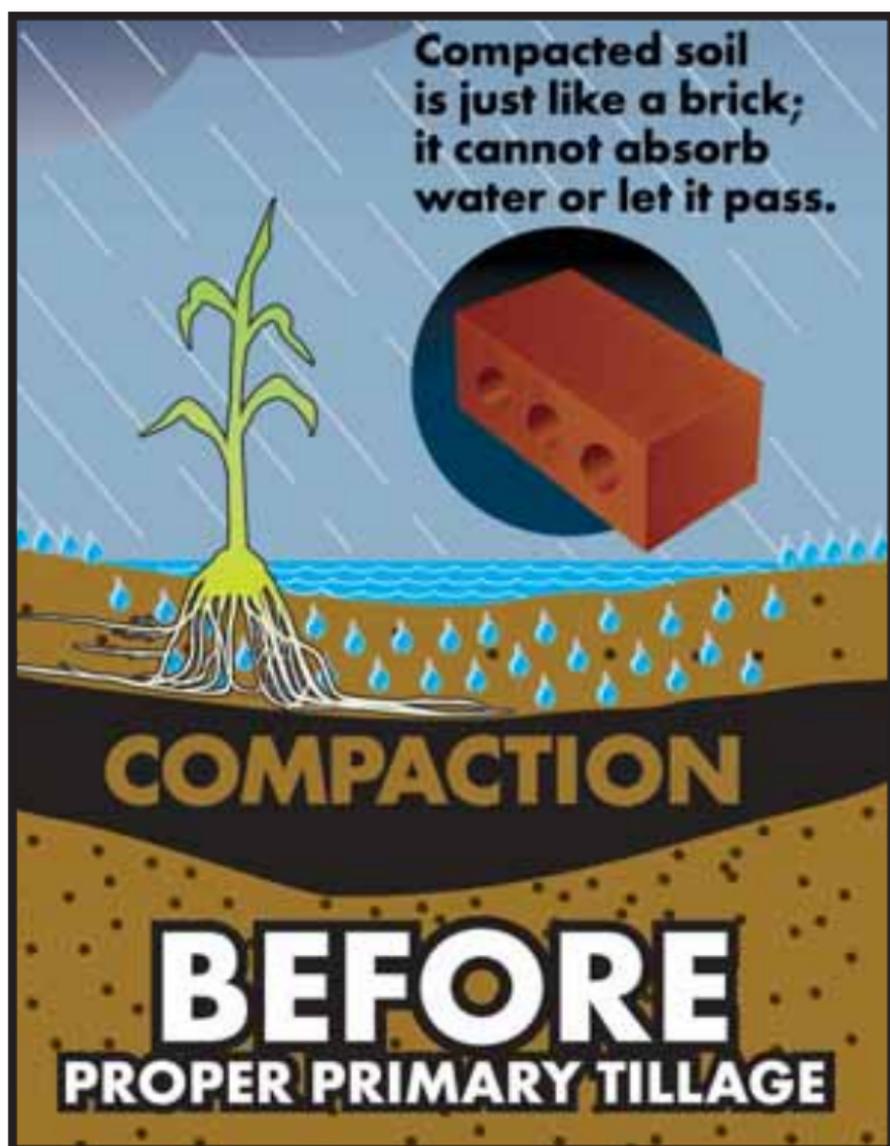


Not necessarily. Ponding is usually a result of poorly managed soil. When soil is compacted, it cannot absorb water. Compacted soil is like a sponge that is squeezed tight: there is no space for air and water. To make matters worse, compacted soil forms an impenetrable layer that prevents excess water from draining through. The result is ponding.

Did **You** Know?

*It takes 5,000 gallons of utilized water to produce a bushel of corn. That means 200 bushels of corn require 1,000,000 gallons of utilized water per acre!*

**MISCONCEPTION:**  
*If we get frequent rains, it doesn't matter if my soil is compacted.*

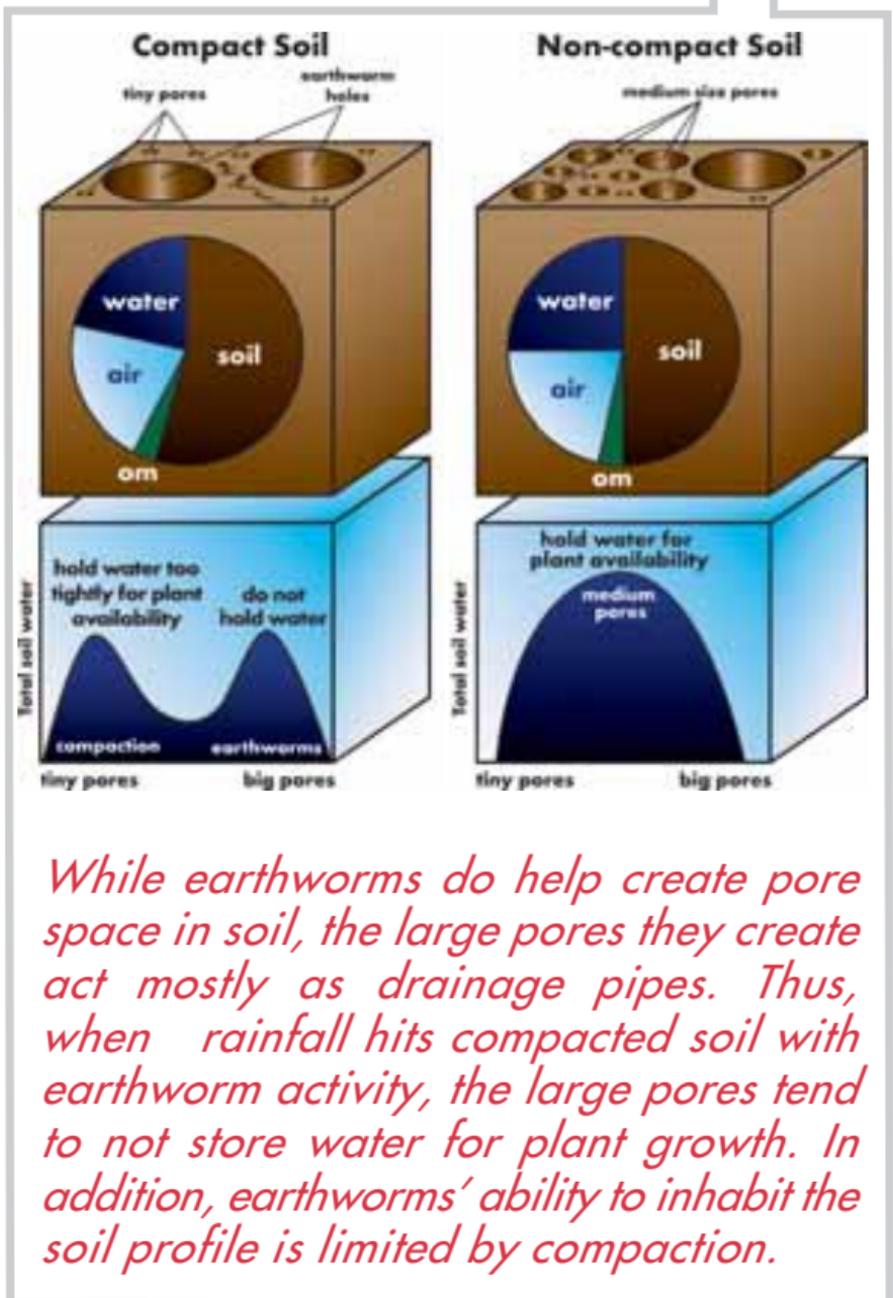


Soil with good tilth has moisture throughout and its open, mellow structure allows the roots to absorb it. Compacted soil can hold very little moisture — primarily in the area above the compaction layer — leaving it vulnerable to quickly drying out. When this happens, the roots will try to find water deeper in the soil.

Unfortunately, a compaction layer will stop them dry. The bottom line? If conditions are optimum, you might get good yields with poor tilth, but you'll always do better with good tilth, no matter how much rainfall you get.

# THE WATER MANAGEMENT SOLUTION:

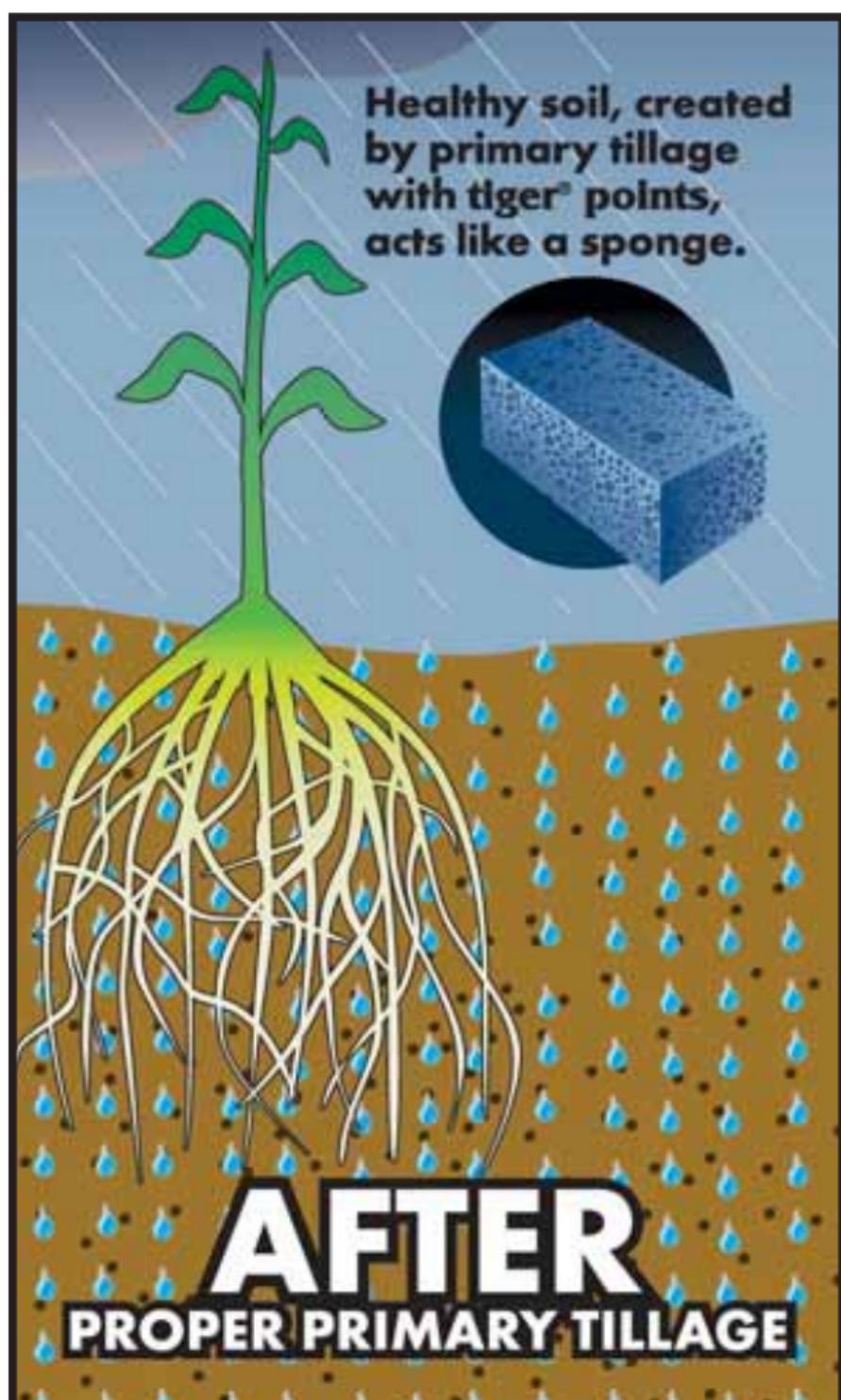
## Did You Know?



*While earthworms do help create pore space in soil, the large pores they create act mostly as drainage pipes. Thus, when rainfall hits compacted soil with earthworm activity, the large pores tend to not store water for plant growth. In addition, earthworms' ability to inhabit the soil profile is limited by compaction.*

# PROPER PRIMARY TILLAGE

Primary tillage, using **yield-till system** tools, fractures compaction and creates a more open soil structure (good tilth) for improved water absorption, infiltration and percolation. This helps increase yields in wet and dry years. If it's too wet, good tilth through primary tillage lets excess water drain through. Good tilth also opens up the soil and increases its water-holding capacity; therefore, in dry years the soil has more moisture and the roots are free to get it.



# THE WATER MANAGEMENT SOLUTION:

## How is good tilth created?

Proper primary tillage creates good soil tilth by managing crop residue and eliminating compaction. This returns the soil to the ideal mixture of 40-50% soil, 20-30% water, 20-30% air (pore space) and 1-5% organic matter. Here's how this is accomplished with an **ecolo-tiger**<sup>®</sup> disk ripper.

### 1. X-disk frame cuts, sizes and incorporates residue.



### *Residue mixed into the soil:*

- Meshes with soil aggregates, enabling water infiltration.
- Builds and separates soil aggregates to resist crusting and maintain pore space.
- Builds soil organic matter, increasing soil water-holding capacity.

# PROPER PRIMARY TILLAGE

2. Lead shanks and main shanks equipped with tiger points fracture compaction.



3. Hydraulic disk level'r distributes the soil and residue mixture while the P/T crumbler<sup>®</sup> Fall seed bed finisher reduces clod size.



## How does the tig

- Fractures up to 80% of compaction with 10 in. (25 cm) point on 30 in. (76 cm) centers
- Creates a mellow, healthier soil for greater yield potential — in dry or wet years
- Maximizes water/air infiltration to reduce ponding, runoff and erosion
- Enables percolation of excess water deep into the soil
- Opens up the soil so roots can go deep for needed moisture during dry times



### Lift

- the tip starts the fracturing by lifting the compacted soil

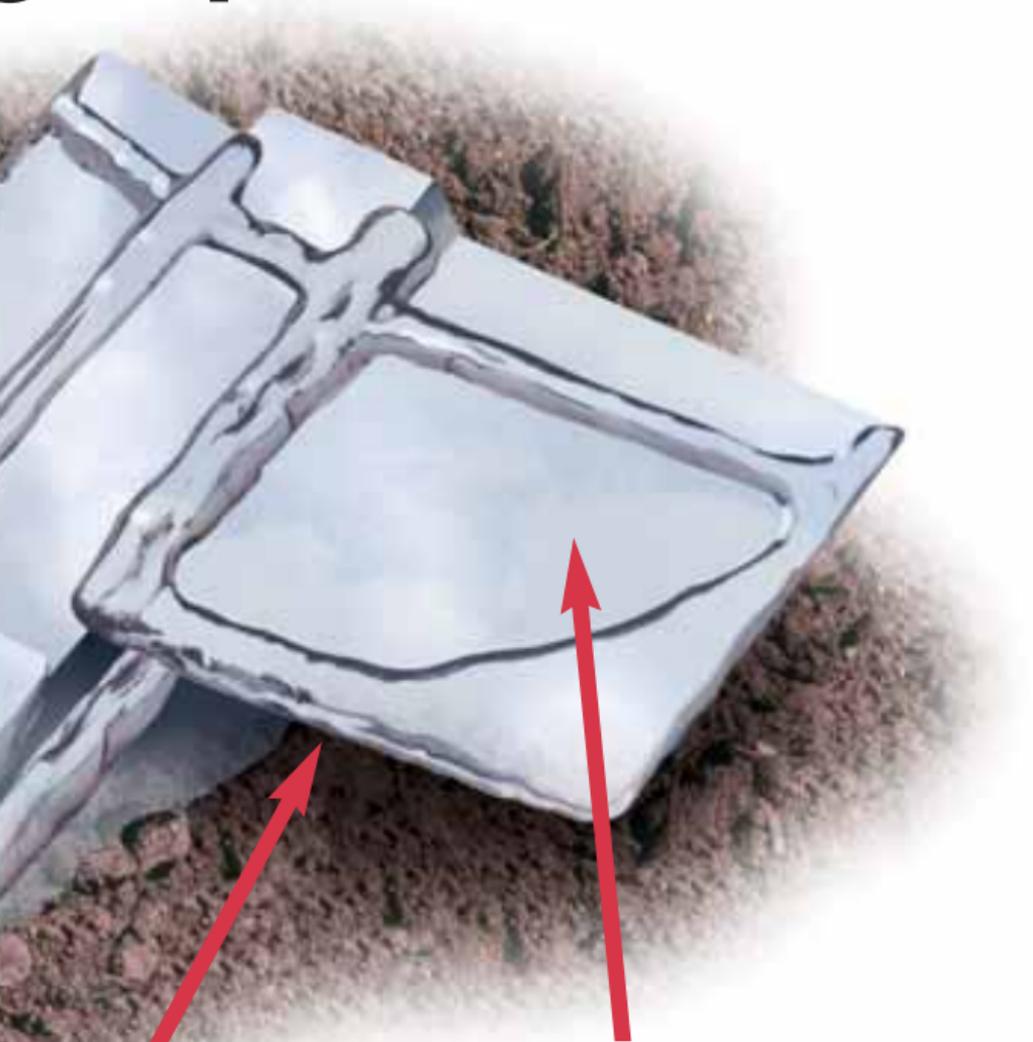
### Tw

- the front area of the twisting action breaks up soil layers — providing immediate reco

This patented lif  
action is **NOT** found

tiger IS THE tiger point.

# ger point work?



***"If the plant hits a dry spell in summer, its deep roots can get to moisture."***

**Francis Childs**

grower of 393 bu/acre corn, speaking about tillage.  
*Wallaces Farmer*, December 1999, pg. 16.

## Twist

of the wings starts  
ion which relocates  
preventing  
ompaction

## Roll

- the back of the wings, together with the shank, finish the job by rolling the soil to incorporate fertilizer and residue

# ft, twist and roll d on sweep points!

# tiger point **GUIDE**



- ◀ **10 in. standard tiger points**  
Fracture: 50% – 70%  
Residue remaining: 70% – 85%



- ◀ **10 in. replaceable tip and wing tiger points**  
Fracture: 50% – 70%  
Residue remaining: 70% – 85%



- ◀ **7 in. standard tiger points**  
Fracture: 30% – 60%  
Residue remaining: 70% – 90%



- ◀ **7 in. replaceable tip tiger points**  
Fracture: 30% – 60%  
Residue remaining: 70% – 90%



- ◀ **8 in. No-till points**  
Fracture: 25% – 50%  
Residue remaining: 70% – 95%

Note: Field performance varies based on soil and operating conditions.

***“The yield [increase] is definitely attributed to better utilization of the water that we had over the winter, allowing the root system to get down to that water to get those nutrients.”***

**Richard Wesley**

USDA Agricultural Engineer, speaking of the up to 15 bu/acre soybean yield increases due to deep tillage.  
*Maryland Farmer*, March 1997, pg. 9.

# Did **You** Know?



*The freeze-thaw cycle cannot adequately solve compaction problems, since compacted soil has had the water squeezed out of it.*

*Example: The Oregon Trail has not been used for over 100 years, yet soil in the wheel tracks has 50% lower water infiltration and 50% lower air permeability!*

*Sharratt et. al*

*Soil Sci. Soc. Am. J. 62:774-777, 1998*

# THE RIGHT PRIMARY TILLAGE SOLUTION:

The Case IH **yield-till system** includes primary tillage tools for every farming practice. Each tool can be equipped in a variety of ways so you get the level of residue management, compaction fracturing and seed bed conditions you want. Each one will help you manage water for higher yields.

## **ecolo-til® 2500 ▶**

3–9 shanks

85–345 required hp

7 ft. 6 in. – 26 ft. 6 in. (2.29 m – 8.08 m)

working widths

- Available in a unique No-till tillage configuration with Case IH No-till shanks and No-till points for virtually disturbance-free tillage
- Can be equipped with fertilizer attachments to till and root zone band fertilizer in one pass



## **ecolo-tiger 730C ▶**

7 shanks (5-shank unit also available)

245–340 required hp

17 ft. 6 in. (5.33 m) working width

- Fractures compaction, increasing soil tilth and water and nutrient absorption by plants
- Optional rear hitch for **P/T crumbler** seed bed finisher



# FOR YOUR FARMING PRACTICE



## ◀ **ecolo-tiger 527B**

5 shanks, 27 in. (69 cm) spacing  
140–180 required hp

11 ft. 3 in. (3.43 m) working width

- Rectangular disk frame
- Available in a unique No-till tillage configuration with Case IH No-till shanks and No-till points for virtually disturbance-free tillage



# THE RIGHT PRIMARY TILLAGE SOLUTION:

## MRX690 ▶

7 shanks (5-shank unit also available)

200–400 required hp

17 ft. 6 in. (5.33 m) working width

- Shallow-concavity blades offer superior soil penetration
- Parabolic shanks and winged tiger® points shatter compaction to create healthier soil
- Standard-concavity rear leveling blades aggressively size clods, roll soil and mix residue



## P/T crumbler ▶

Size Recommendations

530C – 15 ft. (4.57 m)

730C – 20 ft. (6.10 m)

9300 – 25 ft. (7.62 m)

MRX690 (5-shank) – 17 ft. 6 in. (5.33 m)

MRX690 (7-shank) – 22 ft. 6 in. (6.86 m)

- Breaks clods to create a uniform soil surface
- Pushes soil and root crowns into open “holes”
- Levels and firms the soil surface
- Flattens residue to protect soil from erosion

# FOR YOUR FARMING PRACTICE



## ◀ **ecolo-tiger 9300**

9 shanks, 30 in. (76 cm) spacing

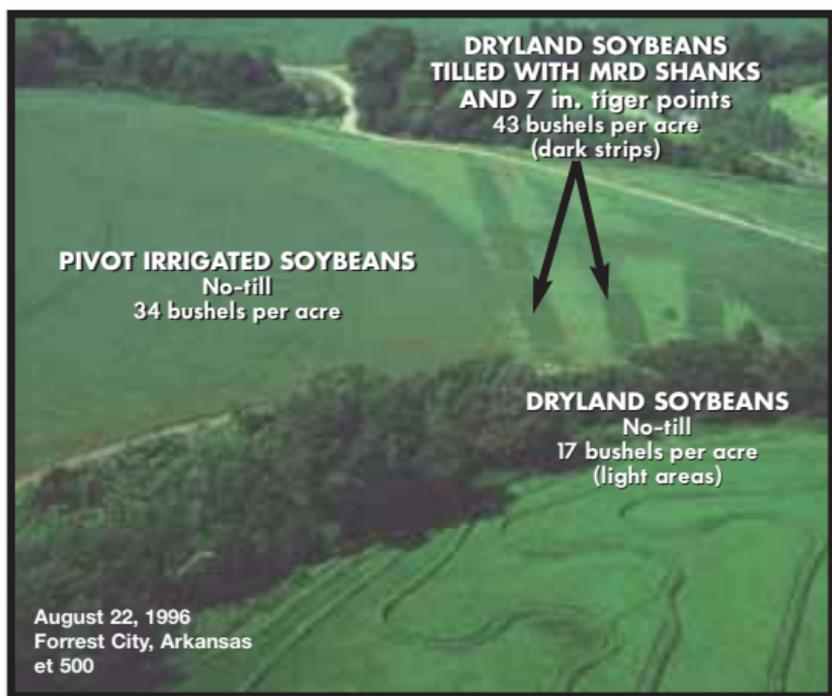
400–500 required hp

22 ft. 6 in. (6.86 m) working width

- X-disk frame
- Lead shanks are optional
- Optional rear hitch for **P/T crumbler**  
seed bed finisher

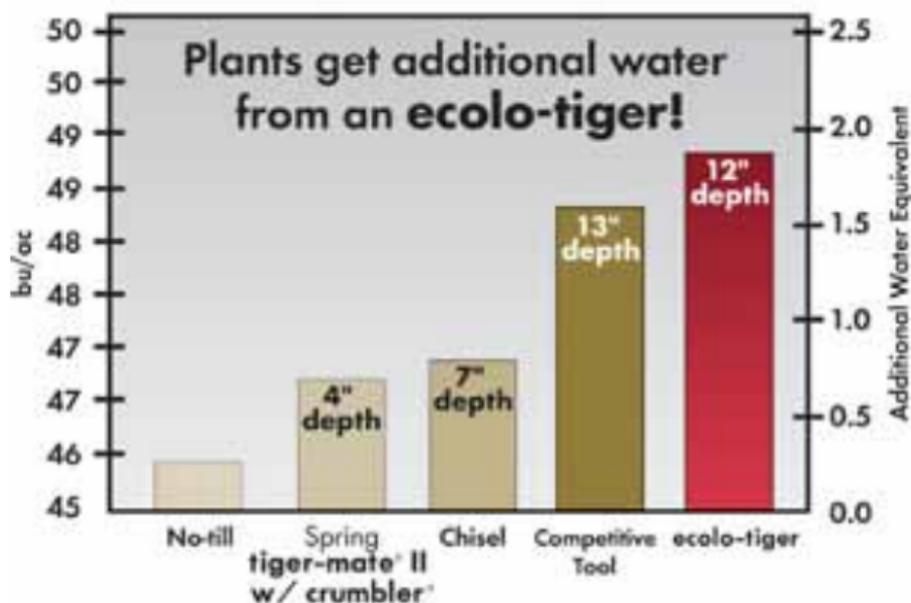


# Did You Know?



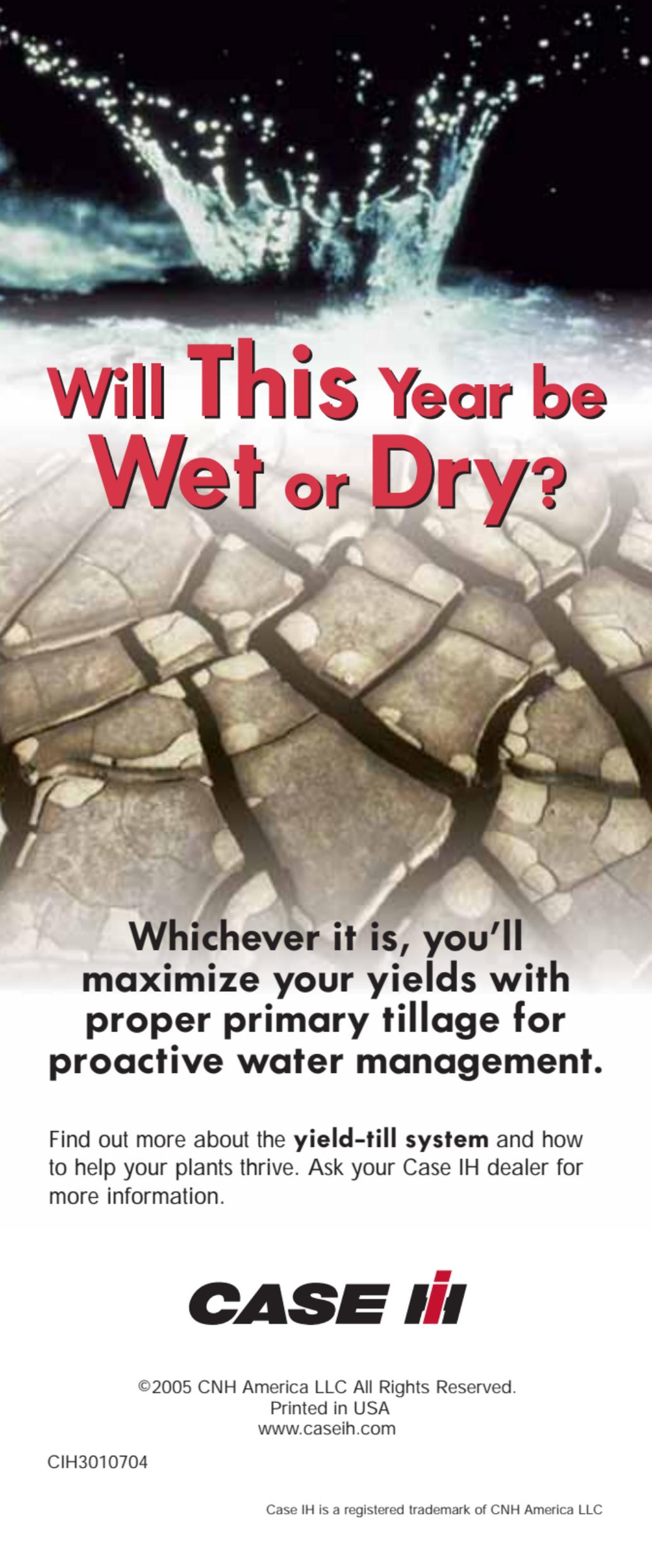
The Case IH **tiger point** improves soil tilth to help manage the extremes in rainfall/moisture and compaction. The result is higher yields even in the most diverse conditions.

## 1999 Soybean Yields in Primary Tillage at Defiance, OH



Data: 1999 DMI Research Data from Defiance, OH Soybean Yields on Toledo Clay





# Will This Year be Wet or Dry?

Whichever it is, you'll  
maximize your yields with  
proper primary tillage for  
proactive water management.

Find out more about the **yield-till system** and how  
to help your plants thrive. Ask your Case IH dealer for  
more information.

**CASE *III***

©2005 CNH America LLC All Rights Reserved.  
Printed in USA  
[www.caseih.com](http://www.caseih.com)

CIH3010704

Case IH is a registered trademark of CNH America LLC