

## **Rural Soil Judging Contest - Explanation on Soil Drainage and Land Use**

During the last year or two, there has been a little gray area that has been exposed and some confusion has ensued on how subsurface drainage can improve the intensity of cropping (land use). I believe everyone understands that subsurface drainage improves air and water movement, and thus land use can be intensified.

The question is:

“How do we deal with situations where you have multiple limitations, and subsurface drainage is used to improve air and water movement?”

Answer:

The reality is, subsurface drainage improves air and water movement, and when you can use subsurface drainage you will. In the event you have multiple limitations including natural soil drainage, and you select subsurface drainage, you have corrected the air and water movement and you can intensify the land use to the next most limiting soil condition.

A couple of items to consider:

1 – Subsurface drainage can only be used on soils with slopes of 0 to 6 percent slopes. Therefore, if you have an 8 percent slope, you won't be able to use subsurface drainage to improve air and water movement.

2 – The only time this scenario will be applicable is when you have a natural drainage class of poorly drained and very poorly drained. If you have a somewhat poorly drained soil, and you have another limitation, you can't correct the air and water movement to a point where it will overcome another limitation.

### **Examples:**

#### Example 1

Lets say you have a soil that is, 2 – gently sloping, 8 – none to slight erosion, 14 – loamy, 18 – deep, and 24 – poorly or very poorly drained.

Land capability class would be, 28 – IIIW.

Land use would be, 35 – This land can be row cropped moderately intensively.

In this example subsurface drainage will be selected, and thus air and water will no longer be a concern. However, we can't improve the cropping intensity to 34 because we still have a slope limitation.

### Example 2

Lets say you have a soil that is, 1 – nearly level, 8 – none to slight erosion, 14 – loamy, 19 – moderately deep, and 24 – poorly or very poorly drained.

Land capability class would be, 28 – IIIW.

Land use would be, 35 – This land can be row cropped moderately intensively.

In this example subsurface drainage will be selected, and thus air and water will no longer be a concern. However, we can't improve the cropping intensity to 34 because we still have a soil depth limitation.

### Example 3

Lets say you have a soil that is, 3 – sloping, 9 – moderate erosion, 14 – loamy, 19 – moderately deep, and 24 – poorly or very poorly drained.

Land capability class would be, 28 – IIIW, or IIIE.

Land use would be, 36 – This land can be row cropped moderately.

In this example subsurface drainage will NOT be selected because we are on a slope that is greater than 6 percent. Therefore, you can't move up the land use class. You also have a slope issue that is the same limitation class as the drainage.

### Example 4

Lets say you have a soil that is, 2 – gently sloping, 8 – none to slight erosion, 14 – loamy, 18 – deep, and 23 – somewhat poorly drained.

Land capability class would be, 27 – IIW, or IIE

Land use would be, 35 – This land can be row cropped moderately intensively.

In this example subsurface drainage will be selected, and thus air and water will no longer be a concern. However, we can't improve the cropping intensity to 34 because we still have a slope limitation.

### Example 5

Lets say you have a soil that is, 1 – nearly level, 8 – none to slight erosion, 14 – loamy, 18 –deep, and 23 – somewhat poorly drained.

Land capability class would be, 27 – IIW

Land use would be, 34 – This land can be row cropped intensively.

In this example subsurface drainage will be selected, and thus air and water will no longer be a concern. You can improve land use to 34 because there are no other soil limitations. The question above does not apply to this scenario because there are no other soil limitations other than the drainage problem.

### Example 6

Lets say you have a soil that is, 1 – nearly level, 8 – none to slight erosion, 14 – loamy, 18 –deep, and 24 –poorly or very poorly drained.

Land capability class would be, 28 – IIIW

Land use would be, 34 – This land can be row cropped intensively.

In this example subsurface drainage will be selected, and thus air and water will no longer be a concern. You can improve land use to 34 because there are no other soil limitations. The question above does not apply to this scenario because there are no other soil limitations other than the drainage problem.

### **Closing comments:**

The questionable scenarios will only be applicable to soils that are poorly and very poorly drained, with another soil limitation that is not any worse than a “yellow” designation, (2- gently sloping, 9- moderate erosion, 15-clayey, 16- sandy, and 19- moderately deep). Ultimately we need to acknowledge that subsurface drainage will improve air and water movement, and thus we can utilize the land up to its next limitation. If a situation arises at any contest, the rules explained above will be used to identify the correct answer. If you have any questions, please call Matt Deaton at 614-562-5659 and I will gladly answer any question you have concerning this issue. I will also go over any questions regarding this issue prior to the start of the State contest on October 9. If you wish to email, my email is [matt.deaton@dnr.state.oh.us](mailto:matt.deaton@dnr.state.oh.us)