

# Irrigation Water Requirements

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Tifton  
April 1

Statesboro  
April 3



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# Water Application Observations Using blue dye



## What will affect infiltration Depth?

- Ground elevation differences
- Water holding capacity
- Infiltration rate
- Percent volumetric Water content already present
- Cover Crops
- Subsoiled or not



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2/10''



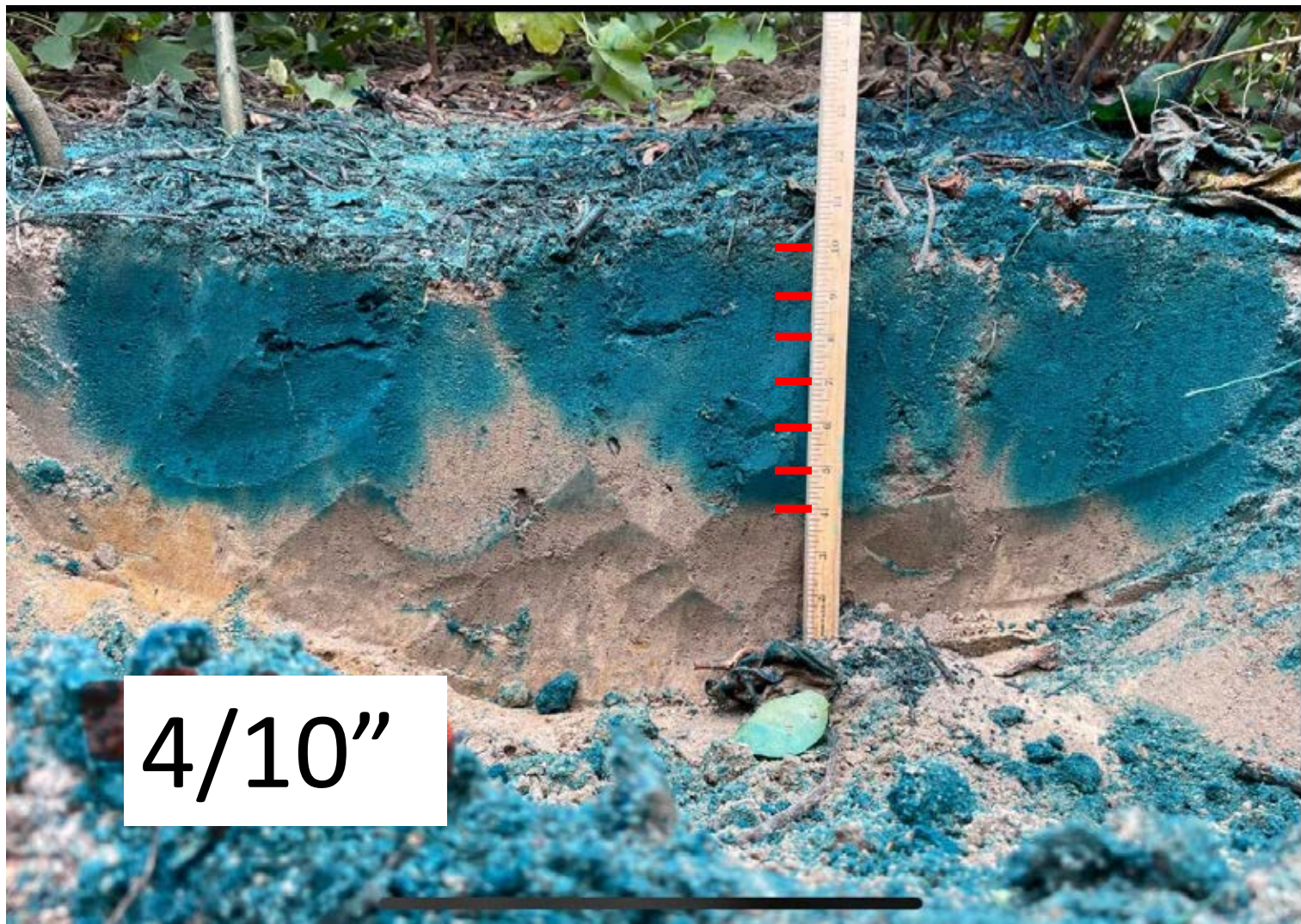
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4/10"



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8/10"



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# Take home Points!!!

- Infiltration isn't always uniform.
- Environmental situations influence depths and uniformity.
  - Soil types
  - Cover
  - Etc.
- You need substantial water application .75-.8 of an inch to reach deeper depths and depending on crop age, need back to back heavy applications rates.



# Irrigation Design Considerations

- To meet peak crop demand (~2.5 inches per week) an irrigation system should be designed with a pumping capacity of approximately 6-7 gpm/acre.
- A pump covering 200 acres would require ~1400 gpm!!
- $$GPM = \frac{453 \times AC \times Depth}{Frequency (Days) \times Hours}$$
- Don't over demand a well with additional acreages or systems.

**Original pivot covers 110 acres. Well flow is 600 gpm. Two years later, producer decides to add a windshield wiper pivot covering 25 acres, utilizing a dry land corner. Now the well can not supply adequate water. How many GPM are actually needed at this point?**

- 152,887.5
- 453 X 135 X 2.5
- $\text{GPM} = \frac{453 \times \text{AC} \times \text{Depth}}{\text{Frequency (Days)} \times \text{Hrs}} = 910 \text{ GPM needed}$ 
  - 7 X 24
  - 168





**Original pivot covers 110 acres. Well flow is 600 gpm. Two years later, producer decides to add a windshield wiper pivot covering 25 acres, utilizing a dry land corner. But now, Electricity is cut off for 4 hrs. during peak electricity load management. How many GPM are needed now?**

M-F 20 Hrs. per day

S-S 24 Hrs. per day

148 Hrs. ran for the week / 7 = 21 Hrs. avg. per day  
run time

- 152,887.5

- $453 \times 135 \times 2.5$

- $\text{GPM} = \frac{453 \times \text{AC} \times \text{Depth}}{\text{Frequency (Days) X Hrs}} = 1040 \text{ GPM needed}$

- Frequency (Days) X Hrs

- $7 \times 21$

- 168



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Thanks for your attention.

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