JS Irrigated Pasture Project-2011

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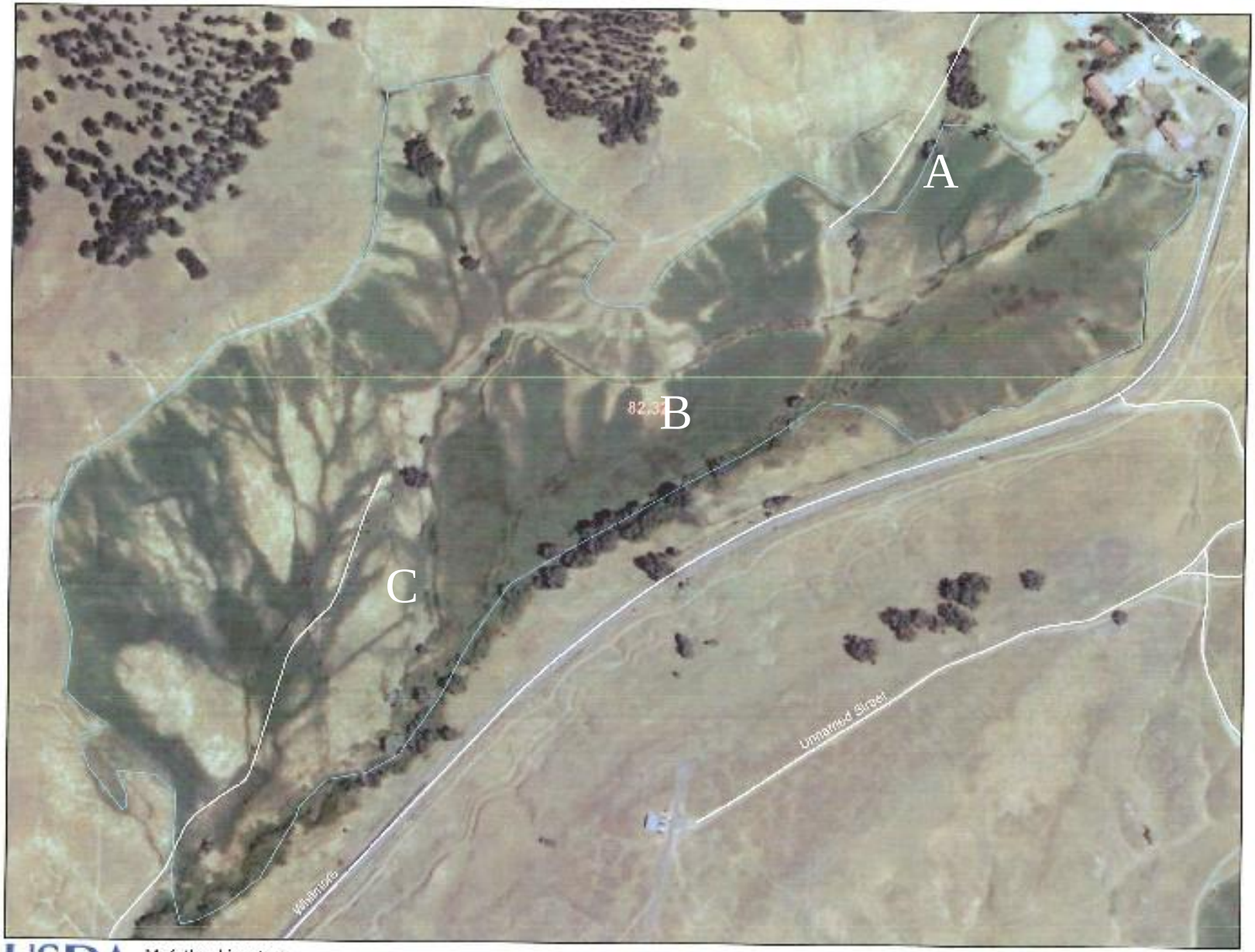
Ed Stanton
Gorge McArthur
Tom Martinez

Forage side…

- Total Pasture estimated at 124 acres
- Five locations
- Estimated production monthly (three reps)
- Submitted to lab for nutrient analysis



USDA

McArthur Livestock
Prepared by FSA
07/22/2011

Legend

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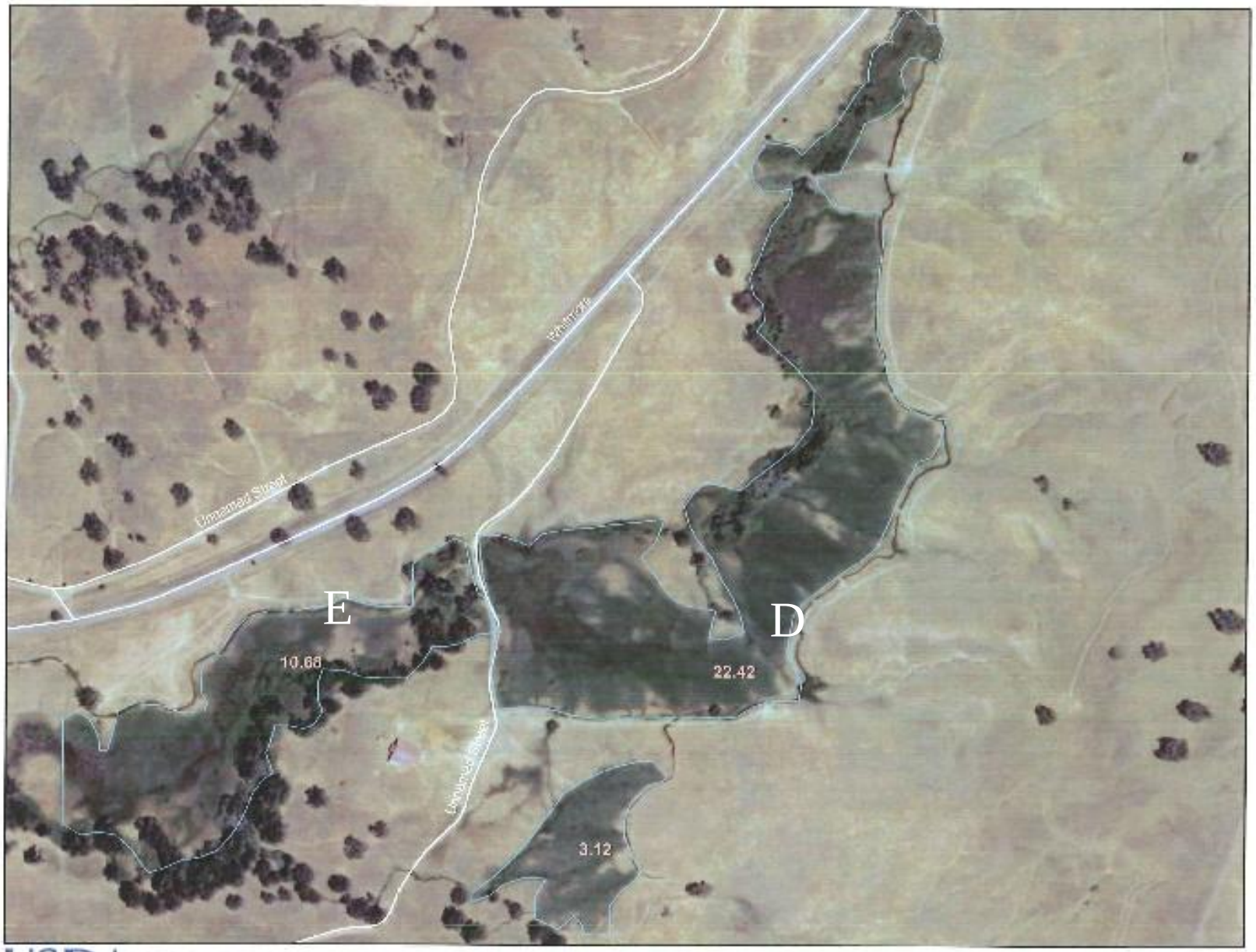
Disclaimer: Wetland identifiers do not represent the size, shape or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS



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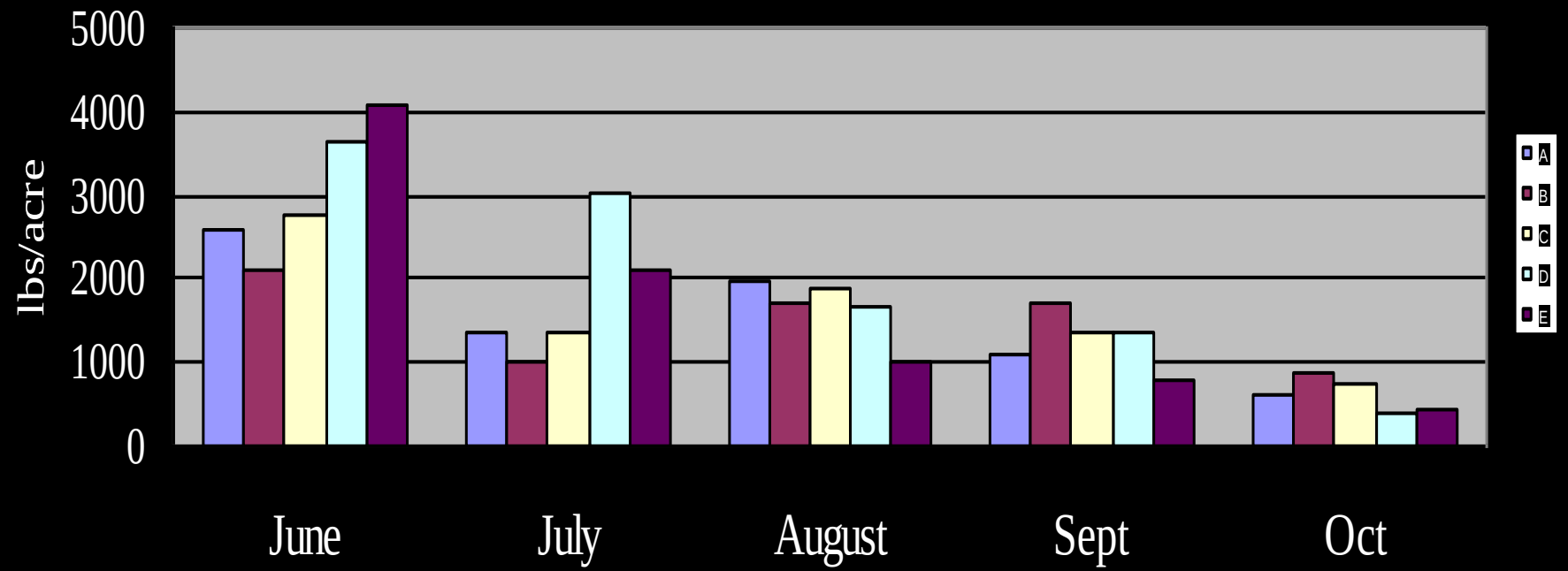
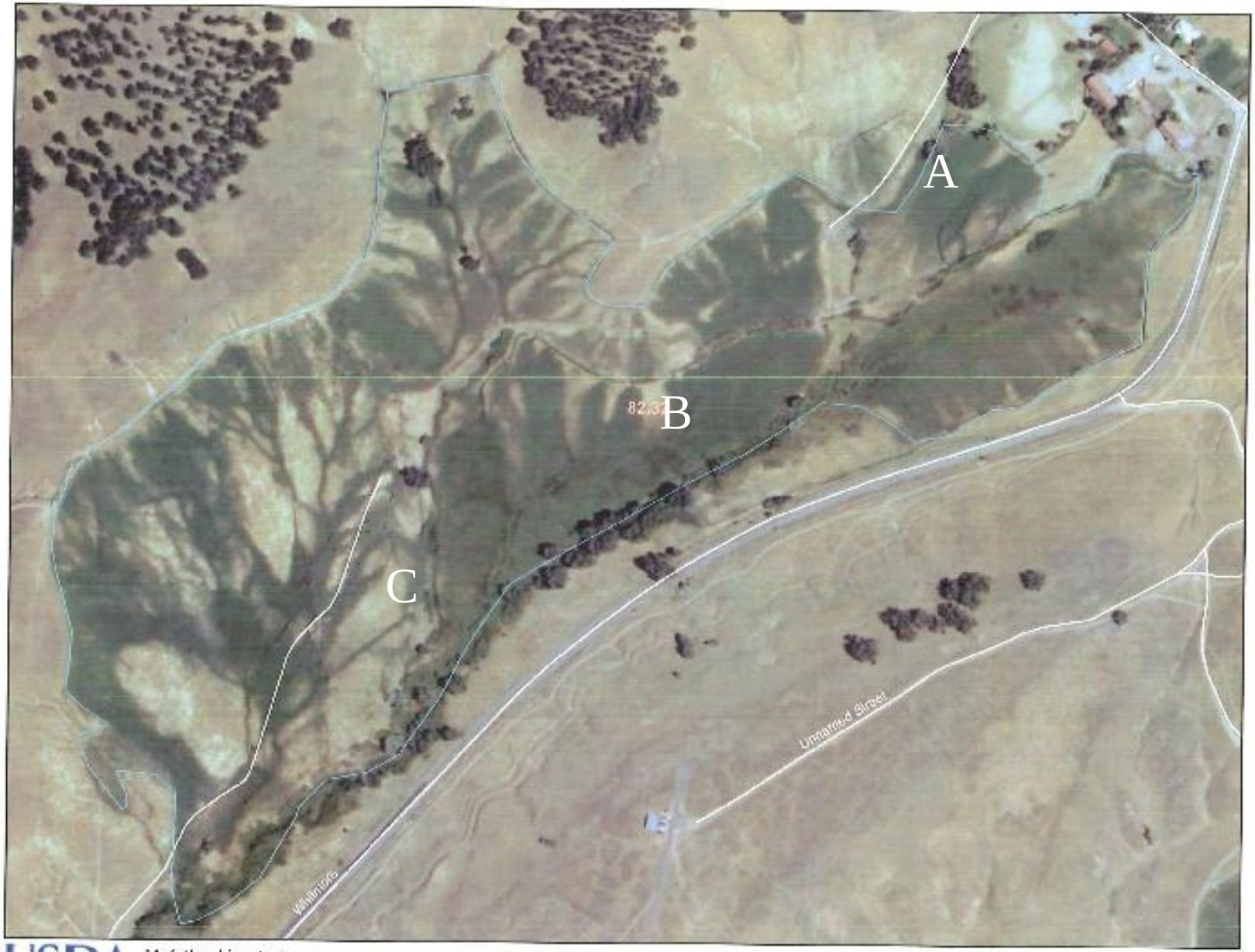
Average Monthly forage Production by Field, JS Ranch 2011



Soil Moisture side…

- Watermark Sensors Installed at 6”, 12” and 24”
- Read Weekly



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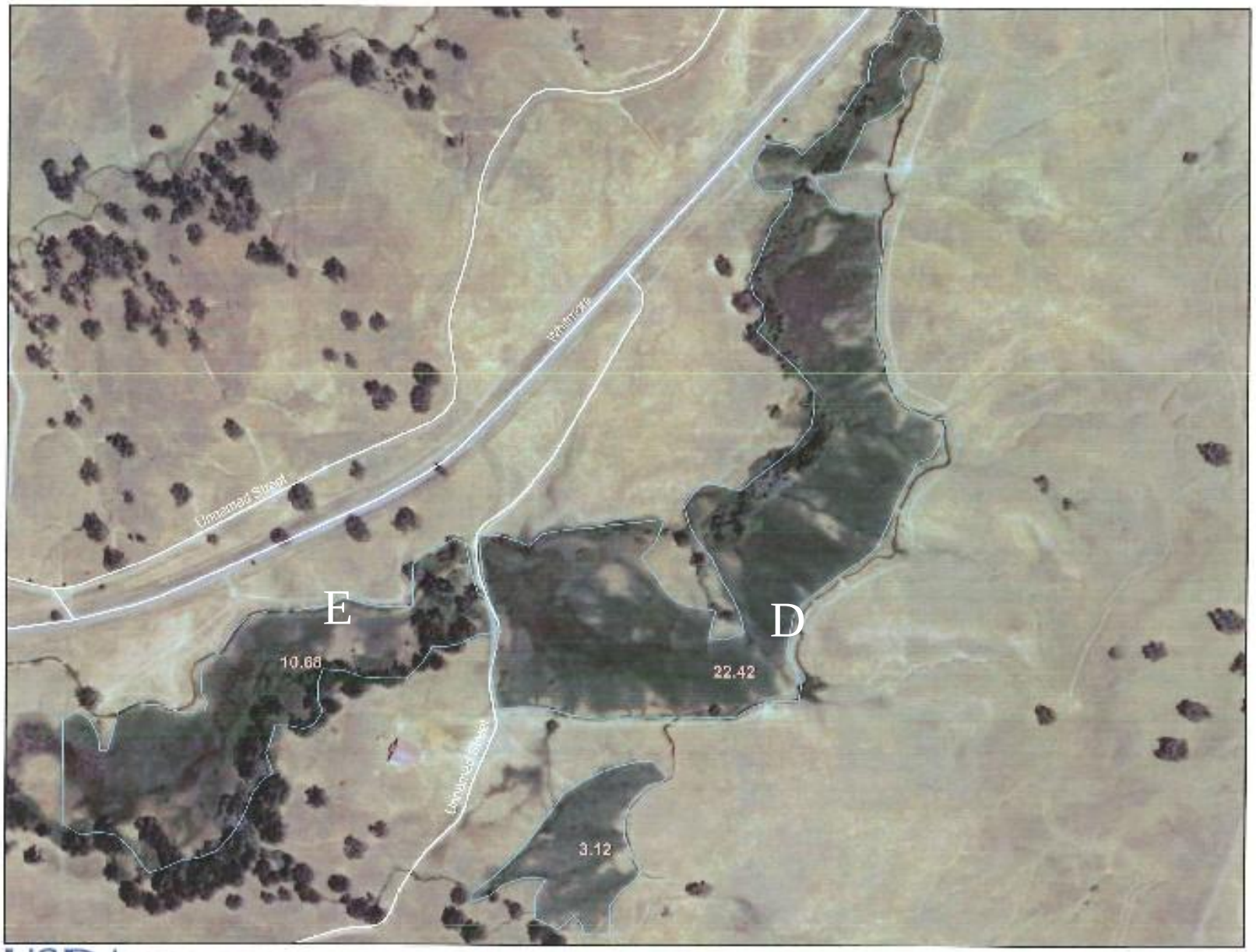

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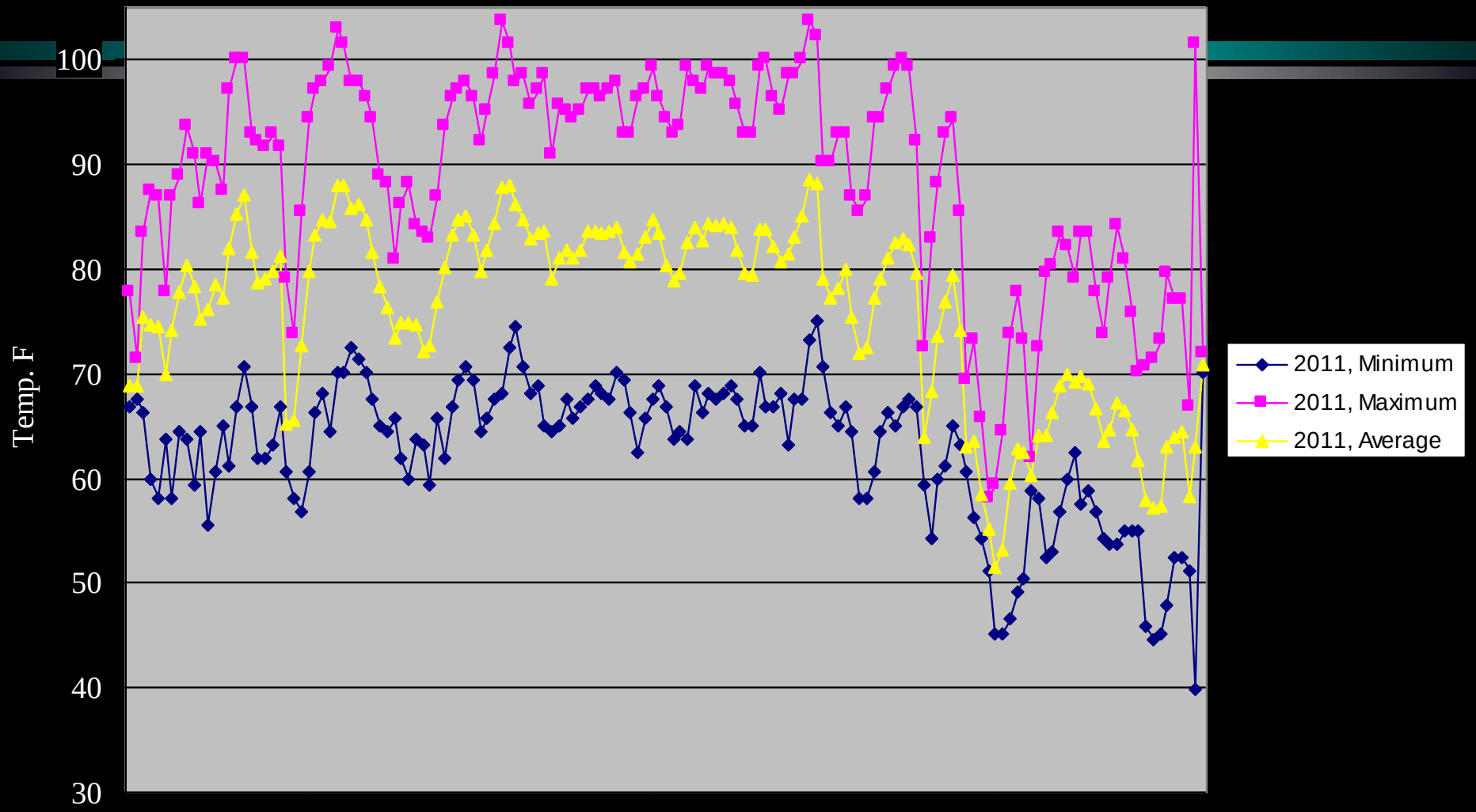
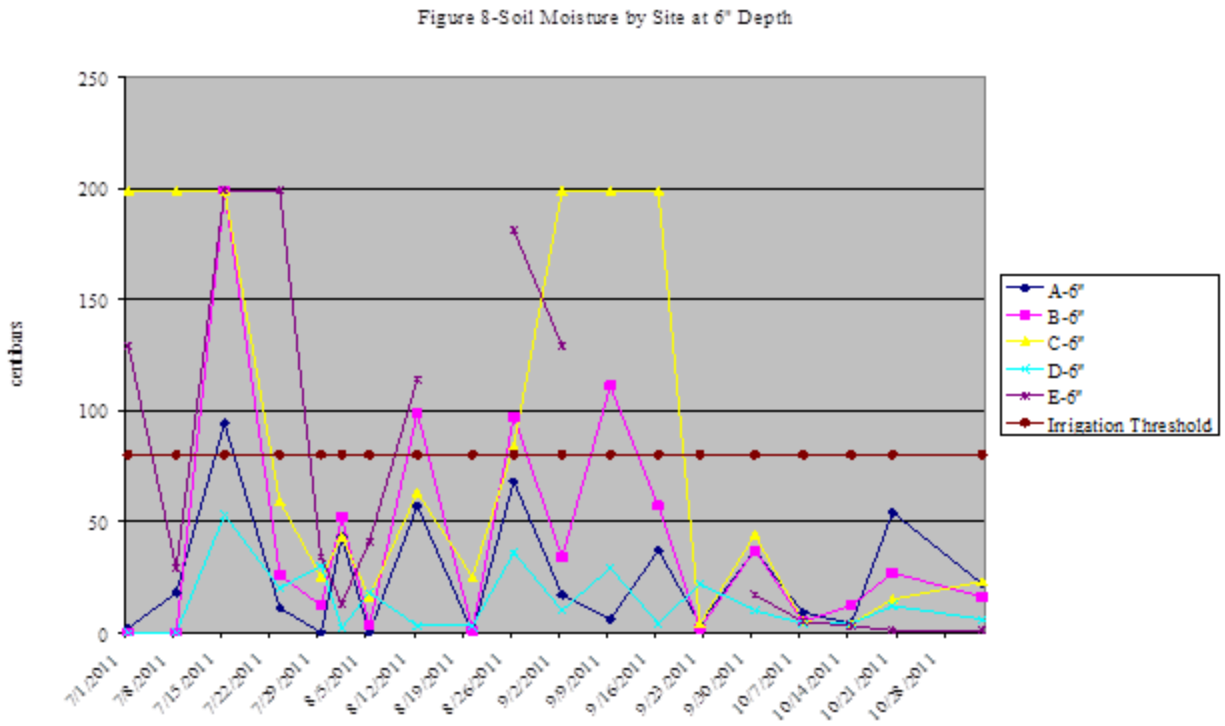
Air Temperature

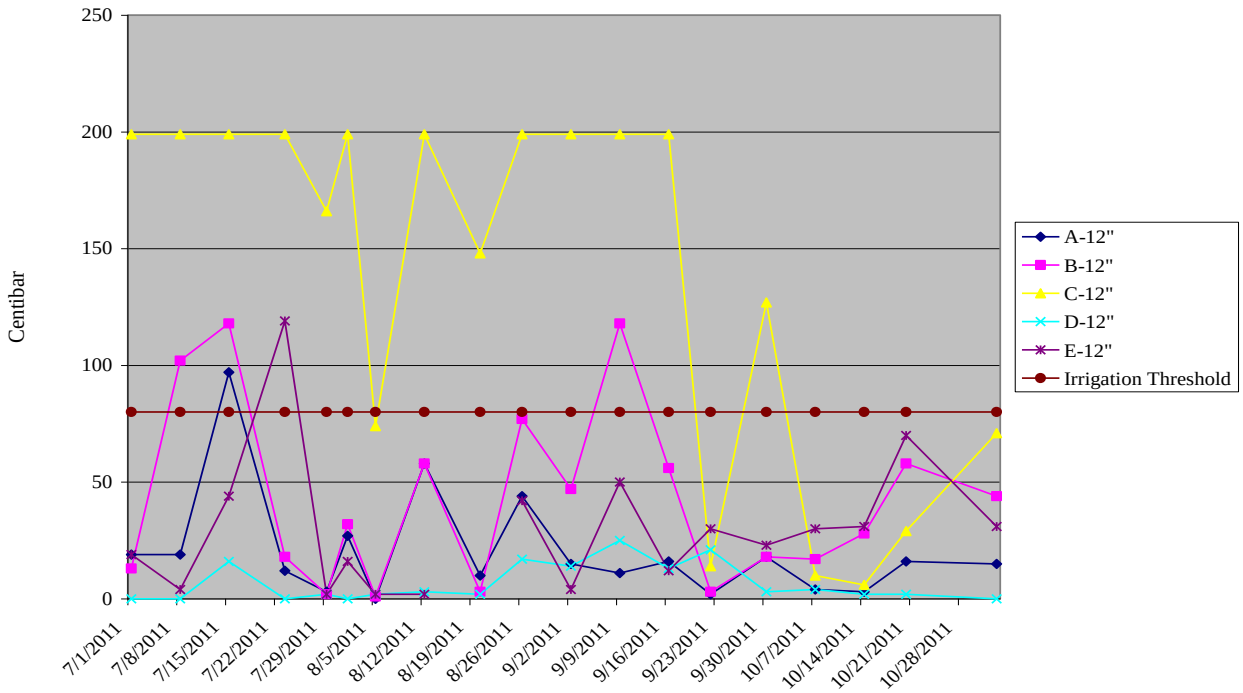


Watermarks-6” All Sites

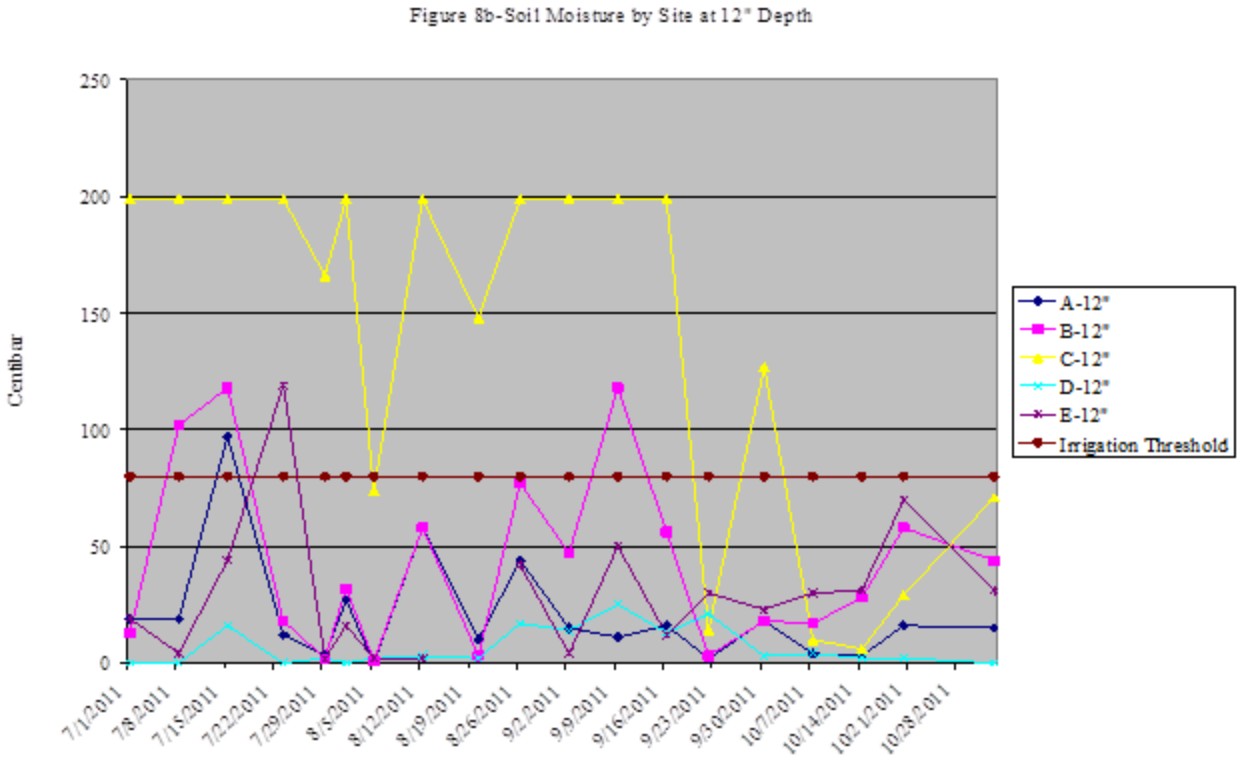


Watermarks-12” All Sites

Figure 8b-Soil Moisture by Site at 12" Depth



Watermarks-24” All Sites



What about the water?

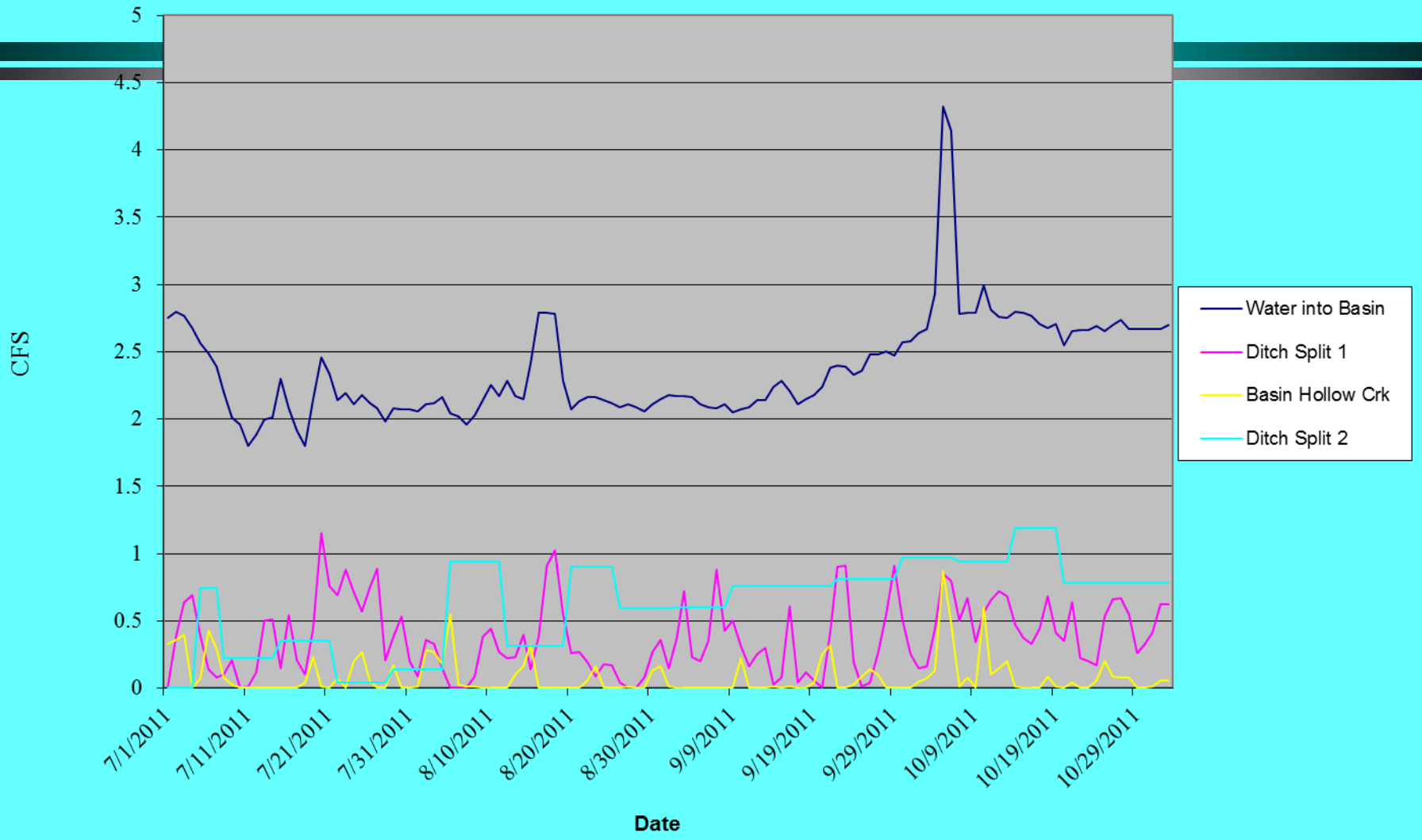

416D


R-1

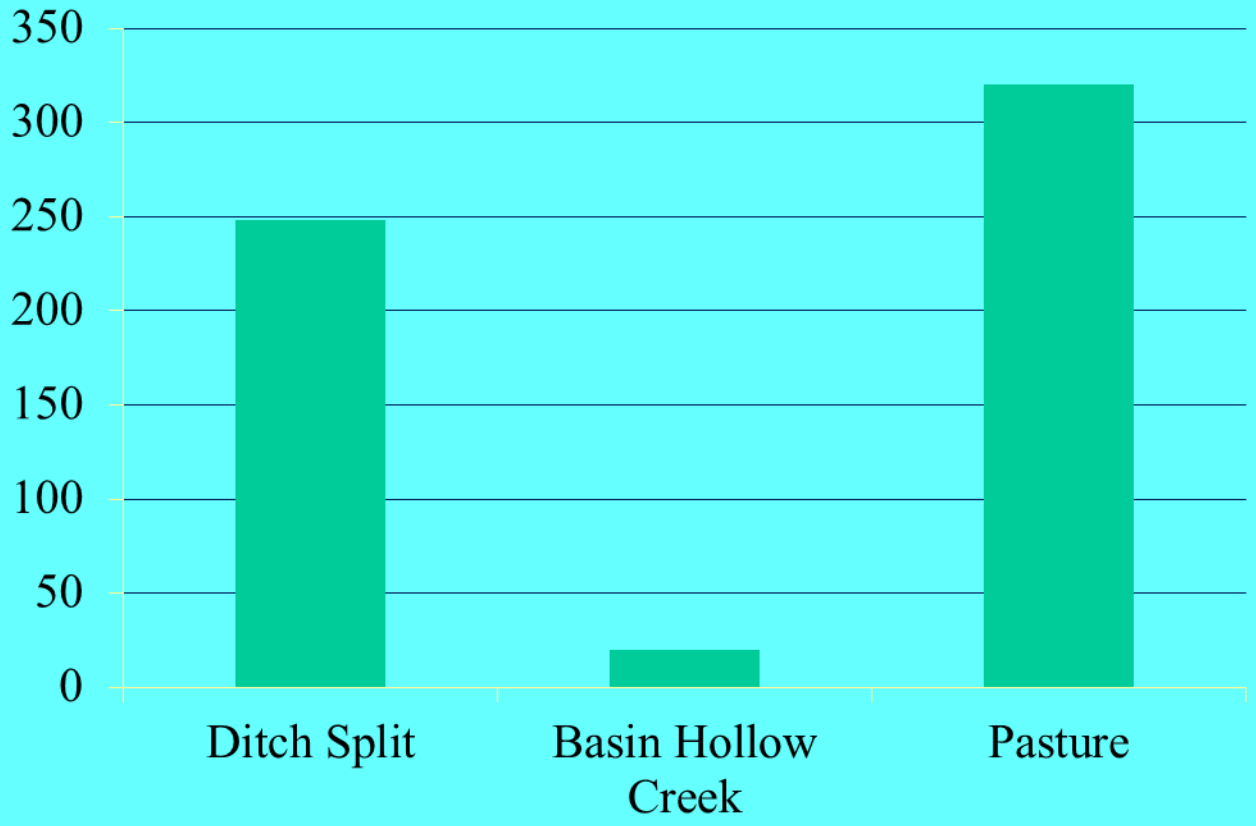
Remember ditches are generally designed to keep elevation, not lose it.

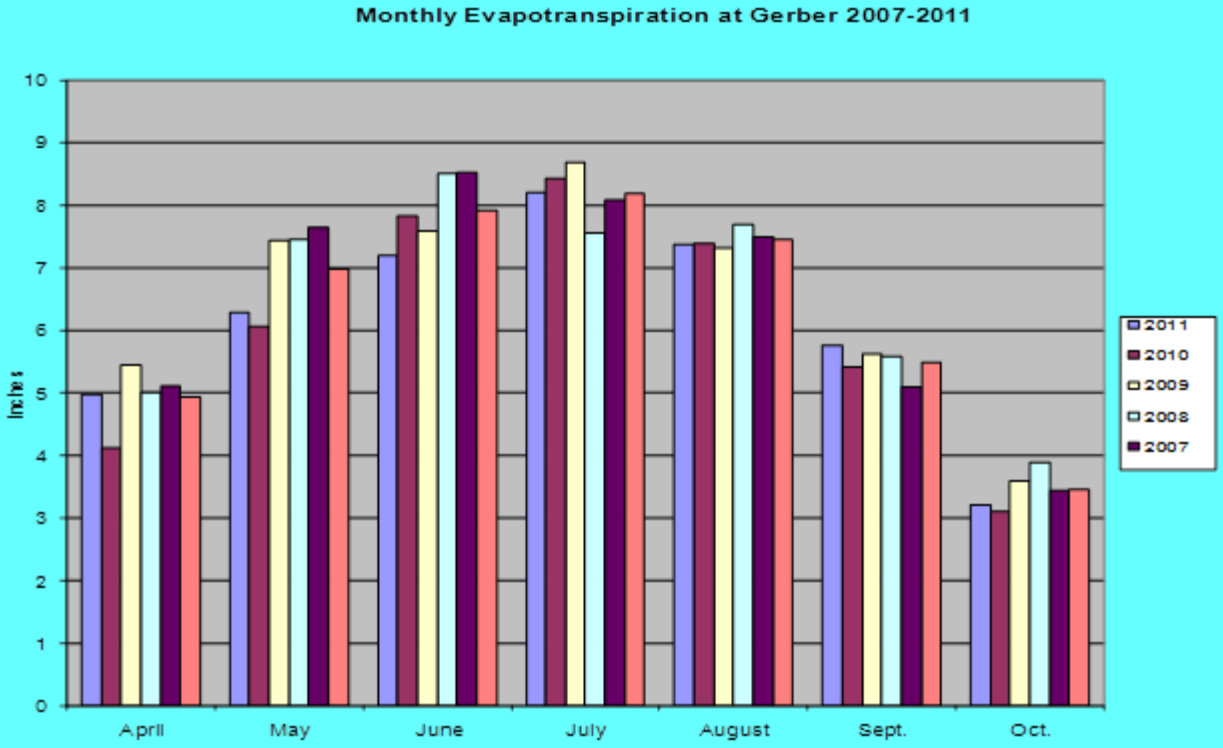

≈ 3/4" - Flush
1/2" - in pipe
1.5"

Weir Flows-July 1-Nov. 2 2011

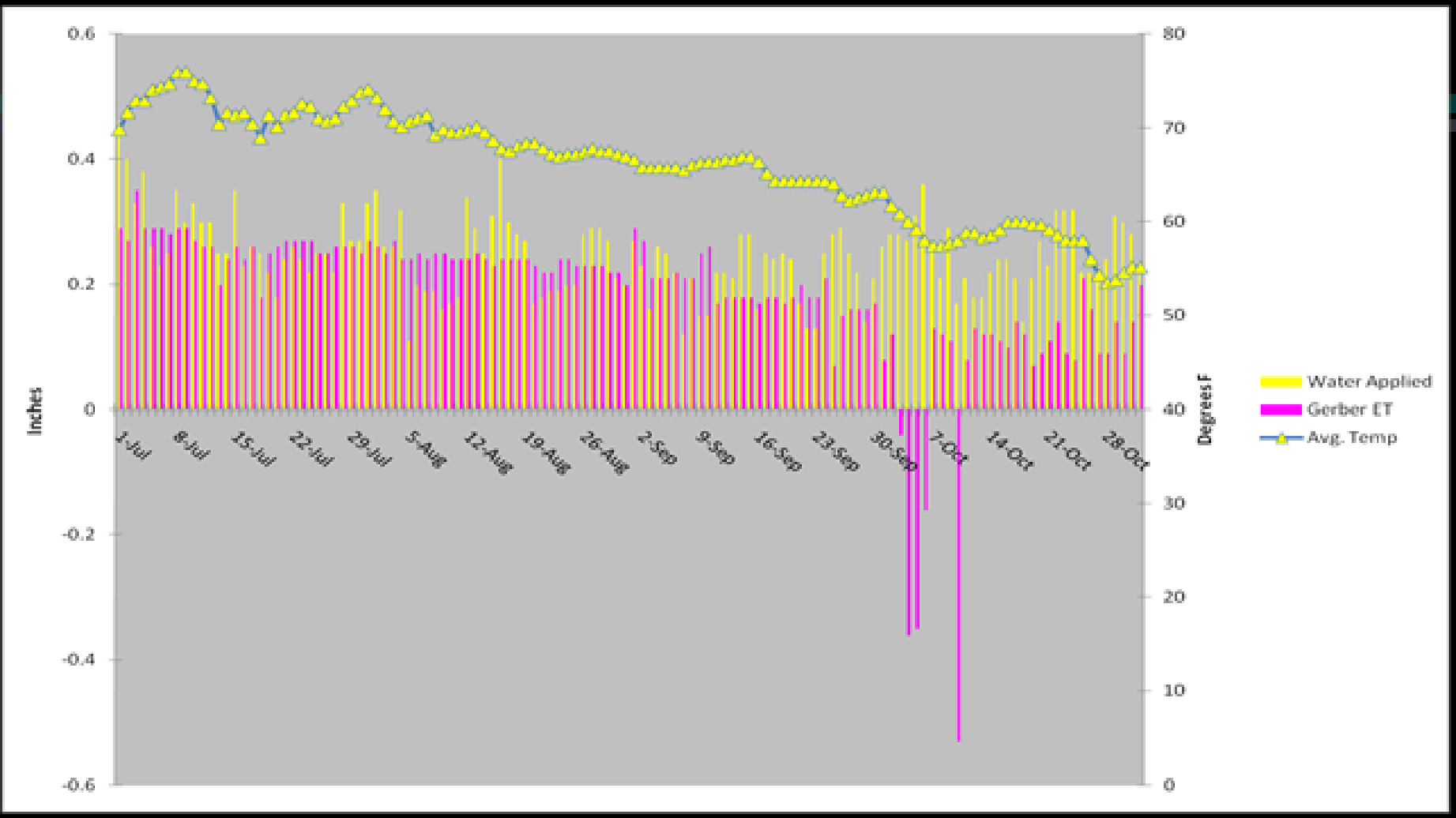


Distribution of Water By Location




Monthly Evapotranspiration at Gerber 2007-2011
Inches
10
9
8
7
6
5
4
3
2
1
0
April
May
June
July
August
Sept.
Oct.
2011
2010
2009
2008
2007

Water Applied to Pasture Compared to Gerber ET



Note: Negative bars coincide with rainfall events where precipitation at Gerber was greater than ET.

Couple of Summary Statistics-July 1-Nov. 2

- Gerber ET for Season=260 Acre Feet (for 124 acres)
- Total Amount of Water applied to 124 acres pasture=340 Acre Feet
- Water that ran off=20 Acre Feet (Basin hollow Creek)
- Estimated Evaporation and Perc=60 acre feet (by difference)

Couple more Summary Statistics

Item	Pasture	Acre
Water Applied	340 Acre Feet	2.73 Acre feet
Basin Hollow Creek	20 Acre Feet	0.16 Acre feet
Net Available	320 Acre Feet	2.57 acre feet
Gerber ET	242 Acre Feet	1.95 acre feet
Loss to percolation, run off and evaporation	98 Acre Feet Efficiency=71%	.78 Acre Feet
Loss to perc and evaporation	78 Acre Feet Efficiency=75%	.62 Acre Feet

What I think I learned…

- The system ain't as bad as I thought it was but keep in mind:
  - In general, pasture was under irrigated in the summer and over irrigated in the fall
  - Millville isn't Gerber (ET Comparison)
  - Different soils have different needs
  - Tightening up fall irrigation scheduling would improve efficiency—This project was done on a small percentage of the pasture managed by a single irrigator--Labor needs may make this tough to do if expanded to the ranch level
  - Strategically improving irrigation delivery system would better distribute water to pasture (i.e., more gated pipe. Need to think through the dollars.
  - Tom and Luis are very patient…

What I think I need to do next:

- Repeat it at a location with a CIMIS Station in close proximity
- Take more watermark readings throughout the season