

TOPIC: Meeting @ KSU to review Koelliker & Martins work

DATE: 30 May 2007

FILE UNDER: RR CA Conservation Committee

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John Thorburn

- Jim Koelliker KSU
- Scott Gerenther BR
- R. Scott Ross KS DWR
- Mark Billinger KS DWR
- Mark Rouse BR McCook
- Jack Wergin Grand Island BR
- Patrick Erger Regional office BR
- ⚡ Doug Mallum
- Jesse Bradley Robin Kumar - grad student
- Jim Schneider Ravi KSU
- Paul Koester Darrel Martin UNL
- Jim Williams

Scott spoke about proposed agenda

Jim } ① surface water }
 Ko } ② Routing network } Said the NRCS
 } ③ GW Model }
 ↳ \$3 million

IDEAL All 3: \$15 million on the models

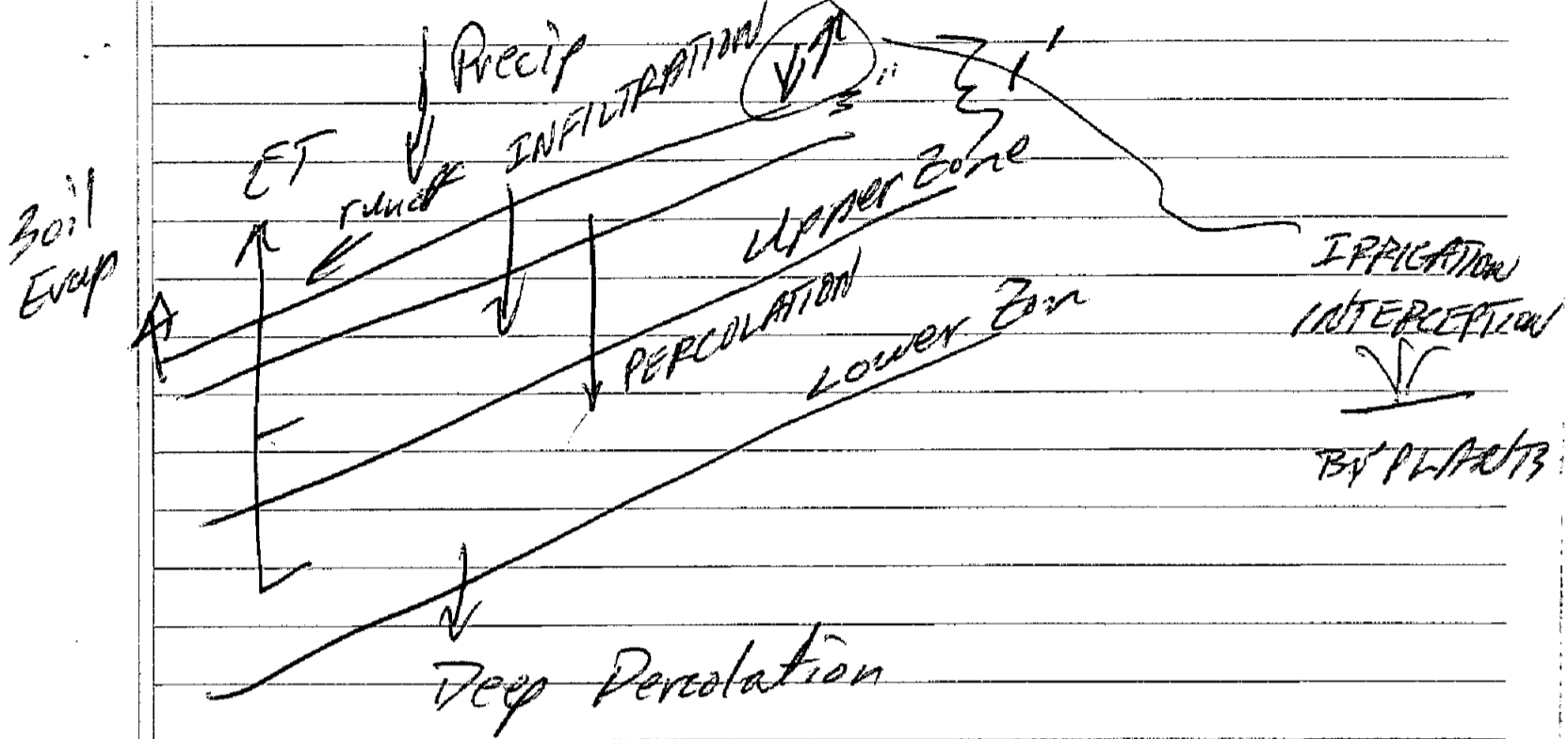
You could look at effects of ethanol plants etc.

For this research we have closer to \$50k so we want a Cadillac, but were merely funding a bicycle

Scott G Purpose was not the final answer on accounting

Scott R Never intended to become a management tool, but rather to get a better idea of the effects of conservation practices

POTVLDR Land Use Simulation



There is a daily ~~simulation~~ monthly constant to handle ET

Jim strongly urges actual precip, not basin averages or weighted average because you lose your peaks

Many terraces were built 30-40 years ago. Without maintaining edge of terrace, they may have a greatly reduced capacity.

TERRACE INTERVAL

LAND USE

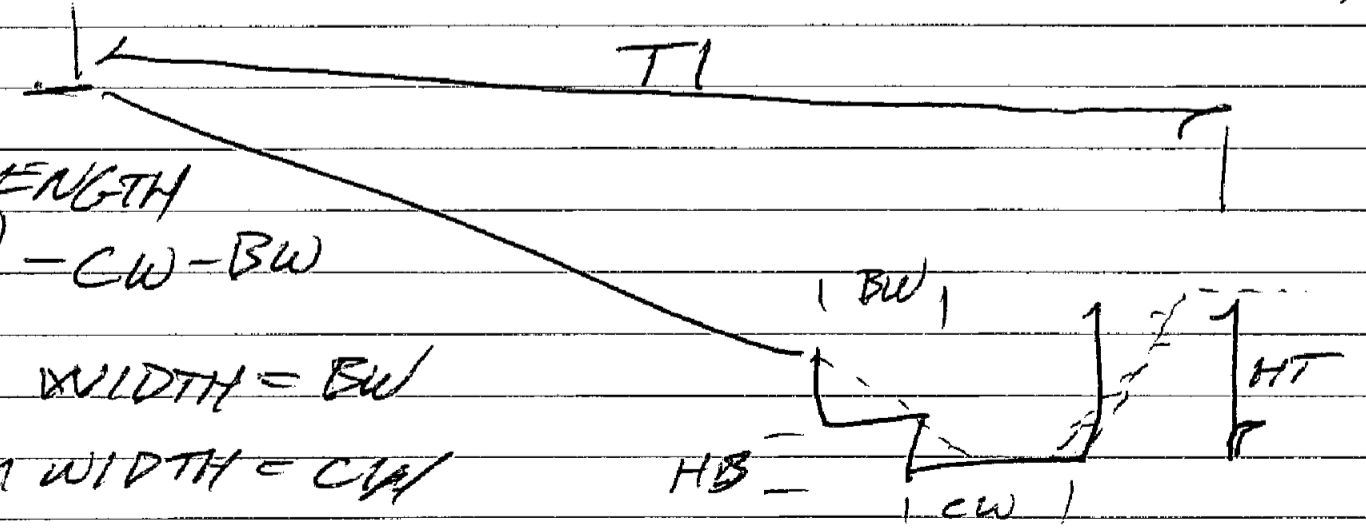
CONTRIBUTING LENGTH

$$C_{L} = T - CW - BW$$

CHANNEL BENCH WIDTH = BW

CHANNEL BOTTOM WIDTH = CW

THEY CURRENTLY ASSUME HD INFILTRATES SAME DAY MAY TAKE SEVERAL, BUT THE EVENTS USUALLY DON'T ADD.



They decided that the ET for a free water surface in the terrace is the same as the ET for the surrounding crop

Not much opportunity for deep percolation on good farm ground - likely loam

a slide on typical terrace dimensions

Terraces affect curve number, reduce runoff, but not much effect on recharge other research shows recharge may be substantially increased.

currently ignoring snow redistribution

Cropping Systems - may be reducing runoff more than terrace / not terrace - 2 crops in 3 years: wheat / corn / fallow

rather than 1 in 2 years

- stripper systems pull wheat heads off instead of cutting stalks; affects snow blowing, wind, etc.

Dave Griffith put a lot more of terraces in Frontier Co. He's now back in Lincoln

Looking @ Jim's handout -

Assumption is 1/10 (first 10%) never gets to soil - stuck on leaf etc.

44 rain events = 4.4" / yr intercepted

Evaporates as soon as there is evaporation potential

Back in early 80s the instrumented 3 terraces
 Watched it wet to 30' deep in 3 years
 After it is wetted, it is very difficult to
 measure recharge rates

Looked @ transmission losses

Jim models 2% per mile, but it may
 be much lower - 2/3%

Needs to get better data on area of terraces
 to say nothing of their condition

Small reservoirs need their own water budget
 They are holes in GIS system

It's clear that they will not simulate every pond

→ Need depth - area - volume relationship for
 these small reservoirs & Drainage area

Data they want is water level vs. time
 they will estimate seepage rate/time

Looked @ Pond seepage etc.

The instrumented people had 4 1/2 acre-ft
 of recharge

700 reservoirs - 30,000 acre-ft
 in a wet year (one out of 5)

So reservoirs have an impact of 1/10th
 of impact of terraces.

Derrel Martin

Slide show with pictures & description of the implementation.

Lunch on our own

1:05

Restart

Derrel

Much of the information's value will be anecdotal soil profile information clearly demonstrates H₂O getting to ground water

They have found that you can't assess a terrace from the office - Frontier Co., 2-yr old terrace, was found to be breached when they went out to see it.

talked about paper regarding

Discussion of Proposal to Determine Condition of Terraces in the Republican River Valley

Much discussion regarding survey-grade GPS - do we need staff to run it

Derrel wrote the ~~new~~ proposal around the money B & R had available.

Bureau pretty much promised that the funds would be given to Derrel.

→ I am to check to see if equipment is ^{survey-grade} available in the fall. _{GPS}

Scott G.

What to do about the NRCS report
This has not formally been transmitted
to the RFA, so we can't really
respond formally,
there were

Jim: few surprises in the NRCS report - pretty
much what was expected

⇒ Scott wants a response from us (state of NE)
AFTER Derrel & Jim K. send ~~one page~~
short response/review to/through
Scott Guenther

⇒ Scott needs in-kind service report from
the state - expenditures etc.

14:53

Adjourn