

Alternative Agricultural Water Transfer Methods: Progress Report, First Quarter – 2ND Year

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Summary

Applicant: Colorado State University: Agricultural Experiment Station, Western Colorado Research Center

Water Activity Name: Quantification of Water Savings Benefits on Subsurface Drip Irrigated (SDI) Alfalfa in the Grand Valley

Water Activity Purpose: Demonstration of water savings potential with subsurface drip irrigation in alfalfa.



Subsurface irrigation system at the Tom Landini Farm. May 13, 2013.

County: Mesa

Water Source: Colorado River

Summary: The study is a side-by-side comparison of furrow and sub-surface drip irrigation (SDI) on alfalfa over two years starting in 2012 (with potential for more research beyond the completion of this study). The study is being conducted on about 3 acres at the Western Colorado Research Center at Fruita in the Grand Valley of Western Colorado and on 5 acres at the Tom Landini Farm on 19 Road, Fruita, Colorado. The study work plan is being completed under the supervision of the Agricultural Experiment Station and NRCS staff.

Objectives: The study is evaluating SDI configurations (two tape placement depths) for water savings, forage yield, and water quality benefits (salt, nutrients, selenium) compared to furrow irrigation, which is the traditional irrigation system for the Grand Valley.

The information from this study can be used to educate local producers on the advantages and disadvantages of SDI. With a broader understanding of SDI the adoption of subsurface drip in the Grand Valley among commercial alfalfa producers could increase.

Also, a delivery system has an opportunity to make significant jumps in conveyance efficiency with ditch-wide adoption of systems like SDI, since SDI is less dependent on gravity pressure and water levels in laterals to be effective.

Second Year, First Quarter Progress Report (2013)

This report is the first progress report for 2013 during the second year of the 2-year project.

2nd Year Plan of Work

The work plan for this project includes:

Task: Monitoring. Underway.

Water use is being monitored through a CoAgMet weather station onsite at the Experiment Station, an atmometer, pipe flow meters, and flumes. Full water balance calculations will be completed once irrigation has been completed in 2013.

Soil samples are being taken to monitor salt, selenium, and nutrient effects. Forage yield quality is also being determined from each cutting to determine forage quality of alfalfa produced with SDI.



Atmometer readings are also being taken regularly at the Landini SDI site.

Task: Outreach and Reporting. Underway.

A field tour for the Salinity Forum occurred on Wednesday, May 15, 2013. Approximately 90 people came to the research center at Fruita to see first-hand the SDI system being used to produce alfalfa.

Pictures: (above left) Salinity Forum tour,

Task4: Yield Comparison. Underway.

The first year (2012) of alfalfa production established the crop. During 2013 we will collect yield data to compare subsurface drip technology with traditional furrow irrigation using gated pipe. The first cutting of 2013 is currently underway (May 20, 2013) at the research center (see photo below). The SDI system is also fully operational at the Tom Landini Farm.



May 15, 2013 at the Western Colorado Research Center at Fruita, Dr. Calvin Pearson explaining the SDI system at the research center; (above right) 2013 first cutting (May 20, 2013) in the SDI also showing soil moisture data logger (on metal post) and atmometer on wood post.

<i>Program Contact</i>

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